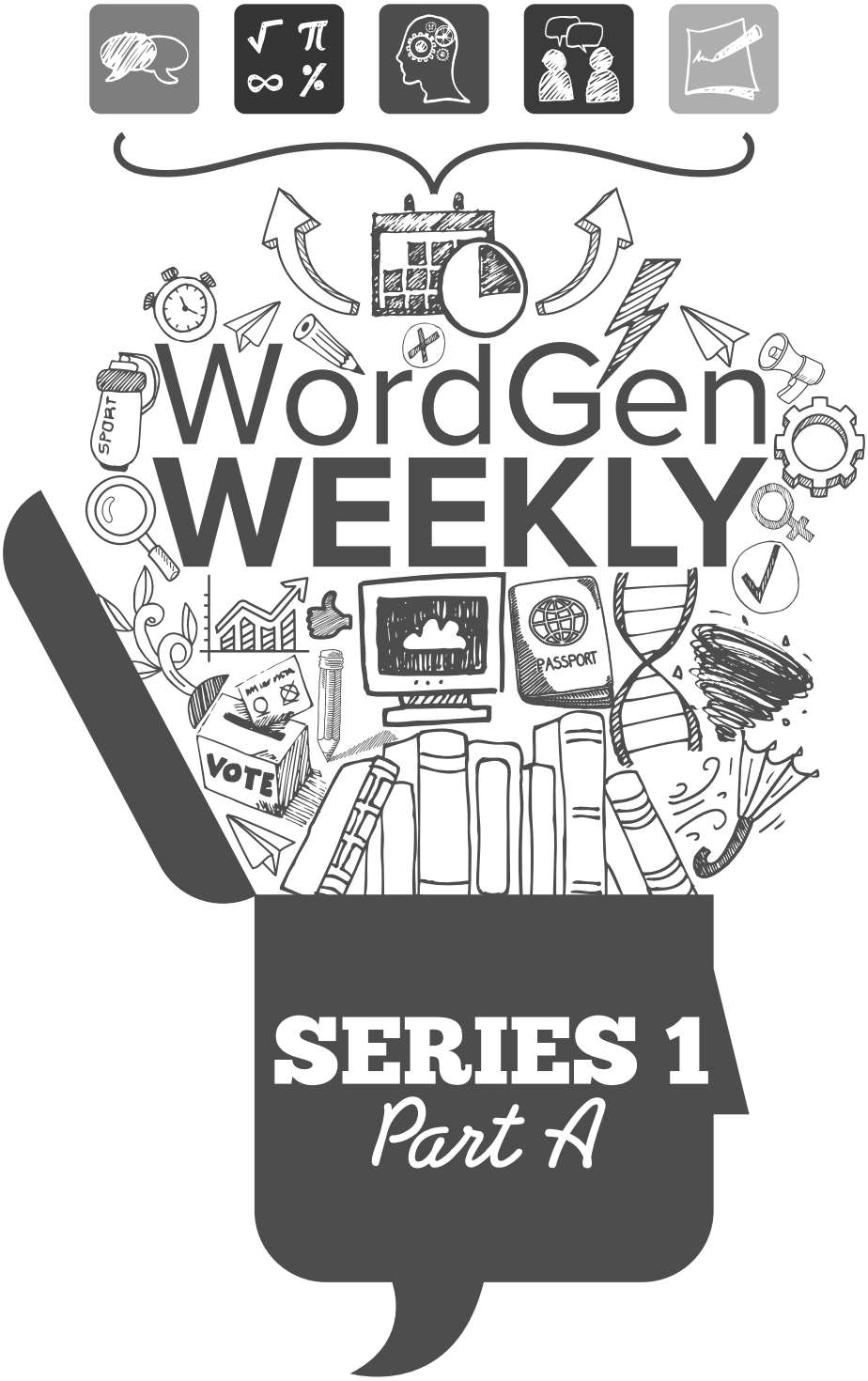
SERP

TEACHER EDITION



SERIES 1
Part A

Join the National Conversation!

word generation

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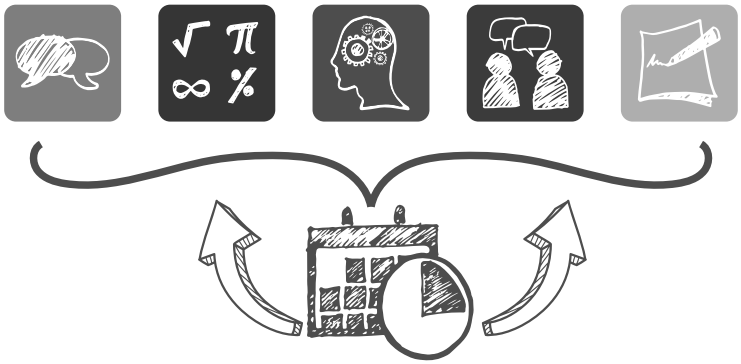
word generation

TEACHER EDITION

WordGen WEEKLY



SERIES 1

Part A

More resources for teachers available on the Word Generation website!

wordgen.serpmedia.org

Please send us comments, corrections, and ideas for new topics!

info@serpinstitute.org

Strategic Education Research Partnership
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www.serpinstitute.org

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Join the National Conversation!

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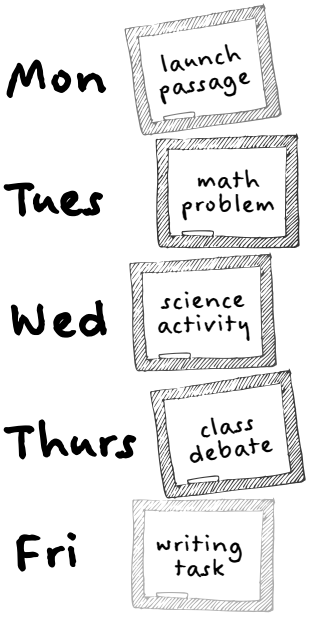
How WordGen WEEKLY Works

An introductory guide for middle school teachers to get started using SERP's original interdisciplinary academic language program

The original Word Generation program *(WordGen Weekly)* is a supplementary curricular resource that offers a series of discussable dilemmas designed to promote students' academic language and argumentation skills. WordGen Weekly creates the opportunity for students to become familiar with current issues and persistent dilemmas, while acquiring skills prioritized in the 21st century learning standards. The program is unique in its cross-disciplinary design, giving teachers of ELA, science, social studies, and math the chance to collaborate on the shared goal of helping students use academic language to articulate their thinking. Series (or individual units) can be used school-wide in grades 6–8.

- Three "series" (years) of materials, with 24 one-week units per series
- Series/units can be used in any order
- Units focus on a social or civic dilemma
- Five connected 15–20 minute activities for ELA, math, science, and social studies
- Five academic "focus words" emphasized per week



Daily instructional activities designed to build the vocabulary of middle school students through repeated exposure to academic words in various contexts

So much more than a vocabulary program!

WordGen Weekly:

- Builds the **reasoning and argumentation** skills that are necessary for learning in all content areas.
- Builds **reading comprehension** and content-area literacy by providing students with motivating text, **opportunities for discussion and debate, and weekly writing**.
- Sets students on a path to **college and career readiness** by providing multiple perspectives on complex problems, and requiring that students **sift through evidence** that supports or contradicts particular perspectives.

Support for Word Generation provided by the Carnegie Corporation of New York, the William and Flora Hewlett Foundation, the Noyce Foundation, the Spencer Foundation, the Leon Lowenstein Foundation, and the Institute of Education Sciences, U.S. Department of Education through grant numbers R305A090555 and R305F100026.

HOW DAY 1 WORKS

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Five academic focus words are embedded in the weekly activities to provide opportunities for students to read the words and establish a context for their meaning.

Word Generation
UNIT 1.01

analyze | factor | function | interpret | structure

Each unit focuses on a civic or social dilemma designed to develop students' academic language and argumentation skills.

This week's issue: WHAT IS THE PURPOSE OF SCHOOL?

Launch passage provides opportunities to read the words in context and associate meaning.

Why do we go to school? Some people think the primary goal of education is giving knowledge to students. They feel there is specific information that all kids should know. For instance, they want kids to know what happened in the Revolutionary War and how the food chain works. Others **interpret** the main role of school as one of preparing students to join the workforce. They are most concerned about students learning particular skills, such as reading, writing, and math.

Some argue that schools should introduce a set of shared values, including liberty and justice. They believe this will help students understand the **structure** of our democratic government. For example, they feel it is important for students to understand that while each of the three branches of government has a different function, the three work together to make sure we all enjoy certain freedoms and live by the same rules.

Some think schools should teach students to critically **analyze** what they see, hear, and read. They want students to be able to think carefully about different perspectives, to respect and challenge other viewpoints, and to form their own opinions about issues that affect them. Although many people say that they want kids to be able to think for themselves, students do not always have the freedom to do so in the classroom.

What do you think the **function** of school is? What do you consider the most important **factors** in providing a good education?

Questions for Classroom Discussion:
- What are two different interpretations of the purpose of school?
- Which function of school do you think is the most important? Why?
- What is an example of a learning activity that teaches students to analyze something?
- What are some of the structures that help schools fulfill their function?
- What are some of the factors that teachers should consider when preparing a lesson for their students?

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Discussion questions accompany each launch passage and check students' understanding of the passage while tapping into their beliefs about the week's topic.

Launch This Week's Issue
(Usually led by ELA teacher)

1. Introduce the topic of the week, providing students the opportunity to discuss their perspectives with a partner.
2. Read or have volunteers read the passage aloud, stopping to discuss the passage. Examples of questions for classroom discussion are noted on the launch passage of each unit.

Teaching tip: Many WordGen Weekly topics are highly controversial. It is important to establish discussion norms to hold students accountable for respectful, equitable, and productive discussions.

Resources on establishing norms are available on the WordGen website.

3. Discuss the various positions presented in the passage. Encourage students to begin developing a claim, an arguable statement about the topic.

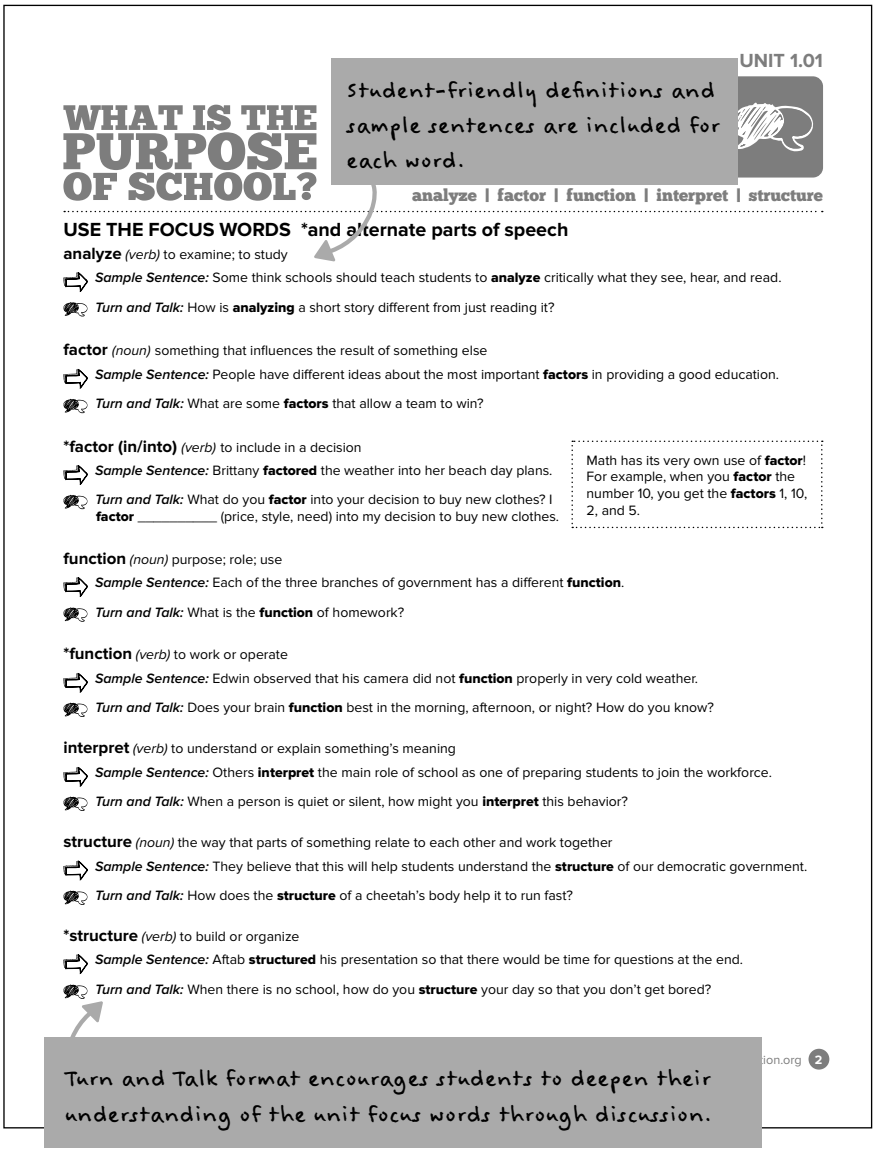
Teaching tip: Explain to students that the lessons present information that can be used to argue both for and against particular claims. Also, each day's lesson adds a bit more information, so it is important to participate in all the activities.

Instructional Considerations:

✓ Model fluent reading of the passage by having the teacher or a fluent reader read the passage while the class follows along.

✓ Model reading and thinking strategies in context. Encourage the use of highlighters or sticky notes to annotate the text.

DAY 1 CONTD.



UNIT 1.01

WHAT IS THE PURPOSE OF SCHOOL?

analyze | factor | function | interpret | structure

Student-friendly definitions and sample sentences are included for each word.

USE THE FOCUS WORDS ***and alternate parts of speech**

analyze *(verb)* to examine; to study

Sample Sentence: Some think schools should teach students to **analyze** critically what they see, hear, and read.

Turn and Talk: How is **analyzing** a short story different from just reading it?

factor *(noun)* something that influences the result of something else

Sample Sentence: People have different ideas about the most important **factors** in providing a good education.

Turn and Talk: What are some **factors** that allow a team to win?

***factor (in/into)** *(verb)* to include in a decision

Sample Sentence: Brittany **factored** the weather into her beach day plans.

Turn and Talk: What do you **factor** into your decision to buy new clothes? I **factor** _____ (price, style, need) into my decision to buy new clothes.

Math has its very own use of **factor**! For example, when you **factor** the number 10, you get the **factors** 1, 10, 2, and 5.

function *(noun)* purpose; role; use

Sample Sentence: Each of the three branches of government has a different **function**.

Turn and Talk: What is the **function** of homework?

***function** *(verb)* to work or operate

Sample Sentence: Edwin observed that his camera did not **function** properly in very cold weather.

Turn and Talk: Does your brain **function** best in the morning, afternoon, or night? How do you know?

interpret *(verb)* to understand or explain something's meaning

Sample Sentence: Others **interpret** the main role of school as one of preparing students to join the workforce.

Turn and Talk: When a person is quiet or silent, how might you **interpret** this behavior?

structure *(noun)* the way that parts of something relate to each other and work together

Sample Sentence: They believe that this will help students understand the **structure** of our democratic government.

Turn and Talk: How does the **structure** of a cheetah's body help it to run fast?

***structure** *(verb)* to build or organize

Sample Sentence: Aftab **structured** his presentation so that there would be time for questions at the end.

Turn and Talk: When there is no school, how do you **structure** your day so that you don't get bored?

ion.org 2

Turn and Talk format encourages students to deepen their understanding of the unit focus words through discussion.

Use the Focus Words

(Usually led by ELA teacher)

4. Introduce the unit focus words by displaying each word, reading each word aloud, and having students repeat each word.

Teaching tip: Establish a routine to introduce and review the focus words.

5. Build students' understanding of the focus words using the definitions, sample sentences, and Turn and Talk prompts.

Teaching tip: Throughout the week, teachers can use this page as a reference and/or for review.

Resources for effective strategies for vocabulary instruction, including vocabulary cards, are available on the WordGen website.

Instructional Considerations:

- ✓ Make word learning fun! Recognize students who use the focus words during and outside of class time.
- ✓ Encourage students to acknowledge the focus words throughout their daily discussions.
- ✓ Creatively display the focus words on a word wall. Display the current words on an active word wall and retire the previously used words to a designated location in the room where students can reference previously taught words throughout the year.
- ✓ Encourage experimentation with the words and use mistakes as teachable moments.

HOW DAY 2 WORKS

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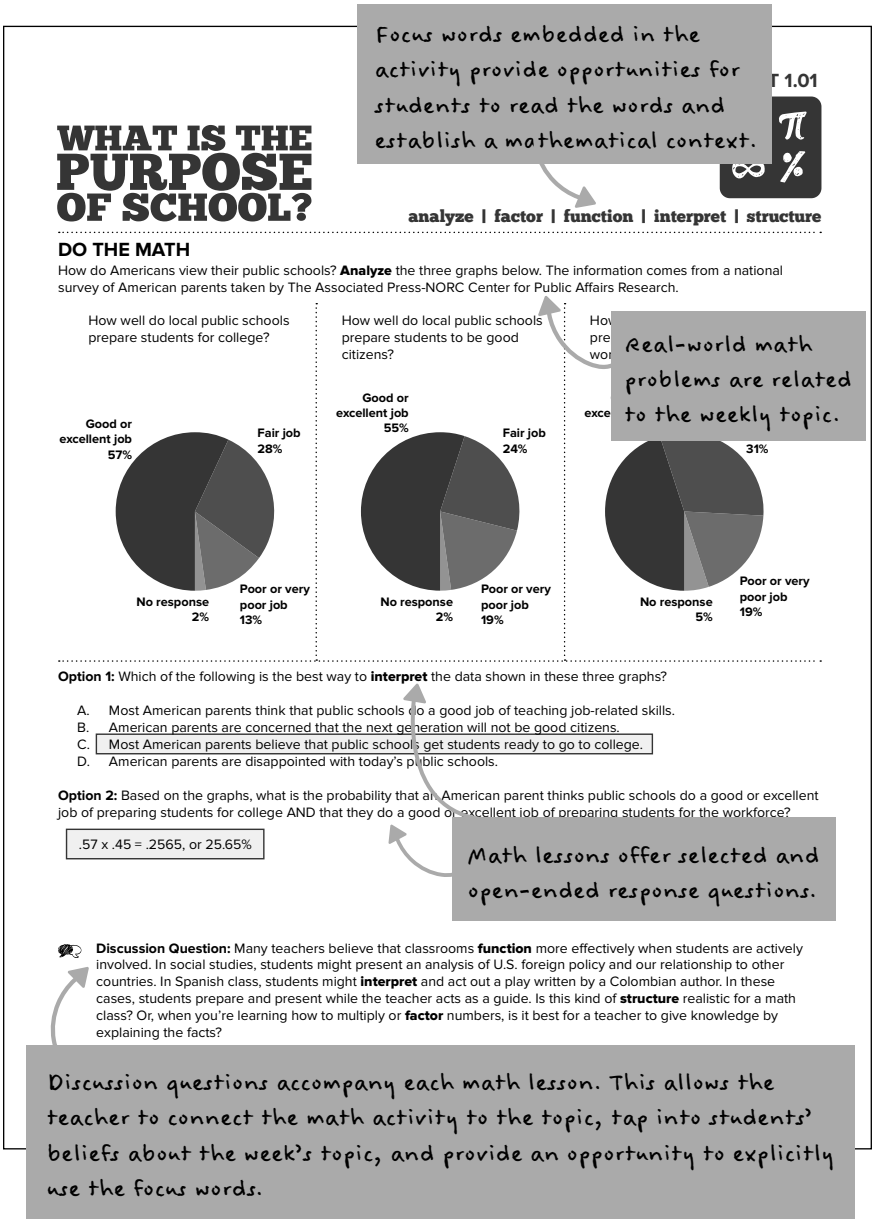

Focus words embedded in the activity provide opportunities for students to read the words and establish a mathematical context.

T 1.01

WHAT IS THE PURPOSE OF SCHOOL?

analyze | factor | function | interpret | structure

DO THE MATH

How do Americans view their public schools? **Analyze** the three graphs below. The information comes from a national survey of American parents taken by The Associated Press-NORC Center for Public Affairs Research.

How well do local public schools prepare students for college?

Good or excellent job 57%
Fair job 28%
Poor or very poor job 13%
No response 2%

How well do local public schools prepare students to be good citizens?

Good or excellent job 55%
Fair job 24%
Poor or very poor job 19%
No response 2%

Real-world math problems are related to the weekly topic.

31%
Poor or very poor job 19%
No response 5%

Option 1: Which of the following is the best way to **interpret** the data shown in these three graphs?

A. Most American parents think that public schools do a good job of teaching job-related skills.
B. American parents are concerned that the next generation will not be good citizens.
C. Most American parents believe that public schools get students ready to go to college.
D. American parents are disappointed with today's public schools.

Option 2: Based on the graphs, what is the probability that an American parent thinks public schools do a good or excellent job of preparing students for college AND that they do a good or excellent job of preparing students for the workforce?

.57 x .45 = .2565, or 25.65%

Math lessons offer selected and open-ended response questions.

Discussion Question: Many teachers believe that classrooms **function** more effectively when students are actively involved. In social studies, students might present an analysis of U.S. foreign policy and our relationship to other countries. In Spanish class, students might **interpret** and act out a play written by a Colombian author. In these cases, students prepare and present while the teacher acts as a guide. Is this kind of **structure** realistic for a math class? Or, when you're learning how to multiply or **factor** numbers, is it best for a teacher to give knowledge by explaining the facts?

Discussion questions accompany each math lesson. This allows the teacher to connect the math activity to the topic, tap into students' beliefs about the week's topic, and provide an opportunity to explicitly use the focus words.

Do the Math

(Usually led by math teacher)

1. Review the focus words.

Teaching tip: *Ask students to think about and explain how the focus words can be used in a math classroom.*

2. Read and solve the math problem(s) that relate to the weekly topic. Option 1 usually involves a simple operation presented in a selected response format. Option 2 is an open-ended response question and is typically more challenging for students.

Teaching tip: *Students may work in pairs or groups to encourage discussion about the math problem.*

3. Facilitate a class discussion using the discussion question at the end of the lesson.

Instructional Considerations:

- ✓ If the math problems are out of reach for your students, discuss and solve Option 1 as a class or in groups. Problems can also be used to demonstrate the proper use of problem solving strategies.
- ✓ The lesson is designed to take 15–20 minutes; however, class discussions can prolong the lessons. Some teachers use timers to streamline instructional procedures and routines in WordGen Weekly classrooms.
- ✓ The discussion questions at the end of the lesson provide a format for connecting the math activity to the topic, explicitly using the focus words, and tapping into students' beliefs.
- ✓ Encourage students to use the focus words in the discussion and use mistakes as teachable moments.

HOW DAY 3 WORKS

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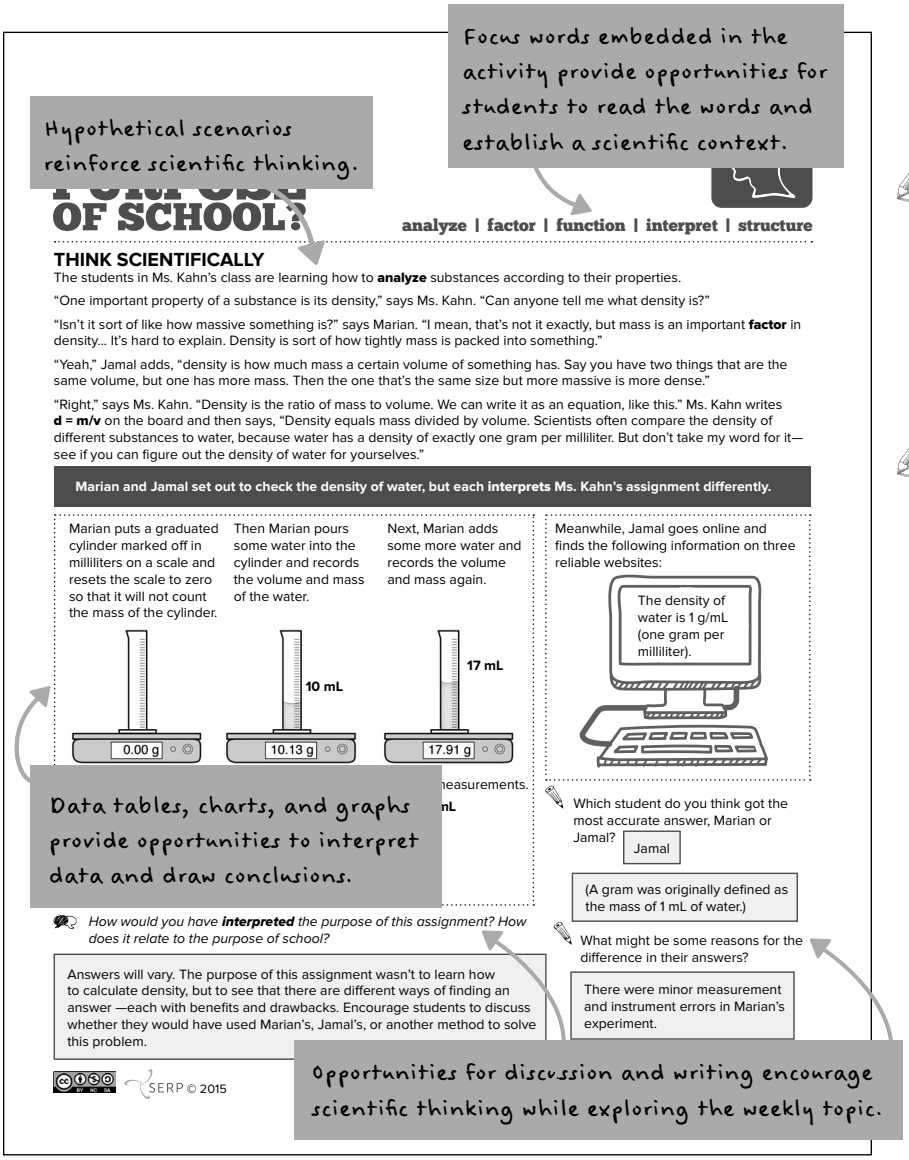

Think Scientifically

(Usually led by science teacher)

1. Review the focus words.

Teaching tip: *Ask students to think about and explain how the focus words can be used in a science classroom.*

2. Read and discuss the *Think Scientifically* passage, allowing students to interpret the data and draw conclusions.

Teaching tip: *Students may work in pairs or groups to encourage discussion about the lesson.*

3. Facilitate a class discussion using the discussion question at the end of the lesson.

Instructional Considerations:

- ✓ The lesson is designed to take 15–20 minutes; however, class discussions can prolong the lessons. Some teachers use timers to streamline instructional procedures and routines in WordGen Weekly classrooms.
- ✓ Encourage students to make connections between the weekly topic and the data in the science experiment.
- ✓ Encourage students to use the focus words in the discussion and use mistakes as teachable moments.

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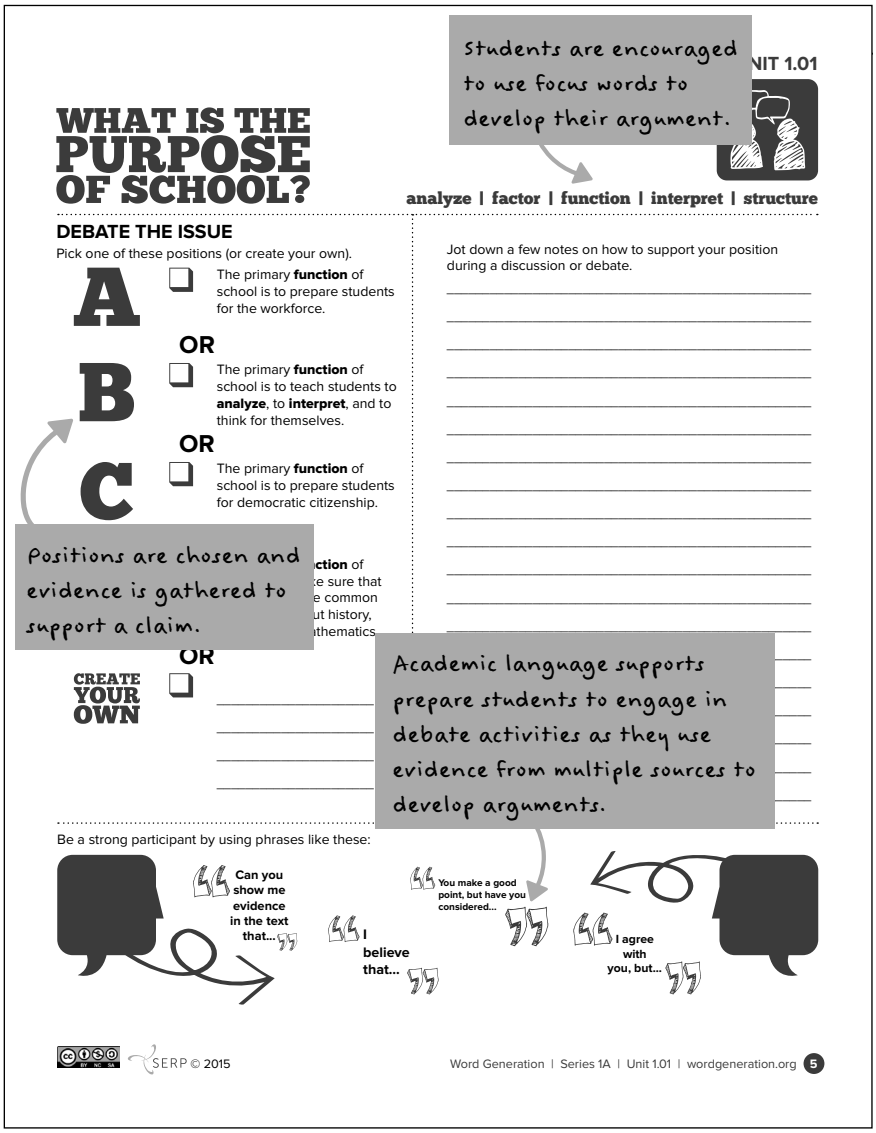

HOW DAY 4 WORKS

Debate the Issue

(Usually led by social studies teacher)

1. Review the focus words.
2. Review the discussion norms.

Teaching tip: *In the early weeks and months, reviewing discussion norms is likely to be required routinely. Over time students will internalize the norms.*

3. Review the debate question and the positions.
4. Let teams pick a position, or assign positions if necessary to ensure both sides are represented.
5. Give each team a few minutes to develop their claim, accumulate evidence supporting or countering their position, explain their reasoning about the connections, and take notes in preparation for the debate.
6. Select a debate format and explain the procedure to students.

Debate resources are available on the WordGen website.

7. Debate the issue!

Rubrics for discussion and debate are available on the WordGen website.

Instructional Considerations:

- ✓ Debates in WordGen Weekly are planned classroom activities in which particular claims are discussed, and students plan together to present and defend their claim. The purpose is not winning or losing the debate; the purpose is to develop students' abilities to think through a set of claims or arguments in order to deepen their understanding and enhance their ability to learn.
- ✓ Many teachers create debate organizers or provide chart paper for students to write their arguments. This can serve as a pre-writing activity for the "take a stand" essay the next day.
- ✓ Discussion norms should be established early on to encourage student engagement and to make the class environment a safe place to discuss freely and to debate ideas. Some teachers have students participate in setting norms. At a minimum, discussion norms should establish expectations for respectful disagreement and establish practices that allow all students to participate. Post norms in the classroom as a reminder.
- ✓ During the debate, encourage students to share, clarify, and expand their thoughts using academically productive talk, and to listen and respond to the ideas of others.

HOW DAY 5 WORKS

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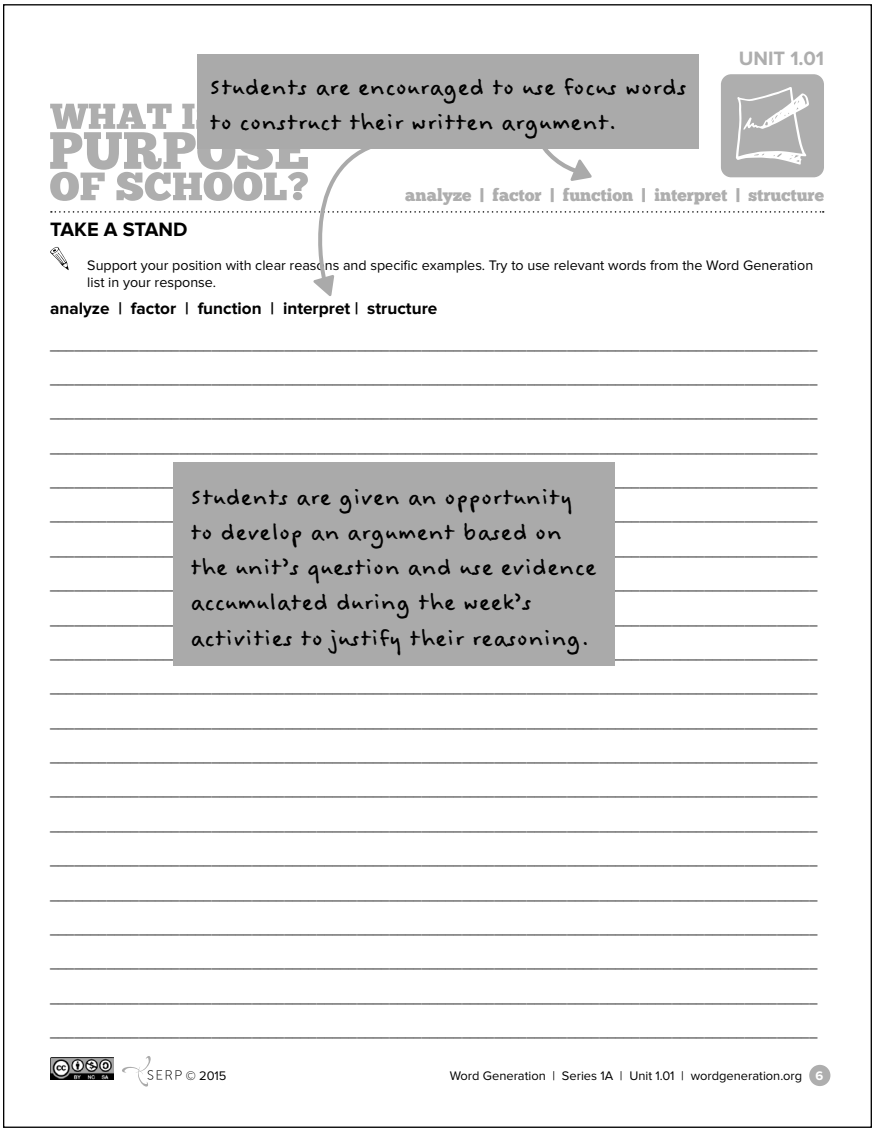


Take a Stand

(Usually led by ELA teacher)

1. Review the displayed focus words.
2. Introduce the writing assignment.

Teaching tip: Students should use evidence to support their written argument. Possible sources of evidence are the launch passage, math activity, science activity, and debate.

3. Students write an essay taking a stand on the issue.

Instructional Considerations:

✓ The writing assignments can change throughout the year based on the needs of your students. Teachers have used WordGen Weekly writing assignments as quick-writes, free-writes, information pieces, letters, and argumentative writing pieces. The main goal of the writing assignment is for students to make a claim and justify that claim with evidence from the text using academic language.

A rubric for argumentative writing can be found on the WordGen website.

More resources available online! wordgen.serpmedia.org

- **Download Center for Students**

  Students can access individual units for free (no registration necessary).

- **Download Center for Teachers (simple registration required)**

  Teachers can access student materials and teacher editions for free. Both color and grayscale PDFs available.

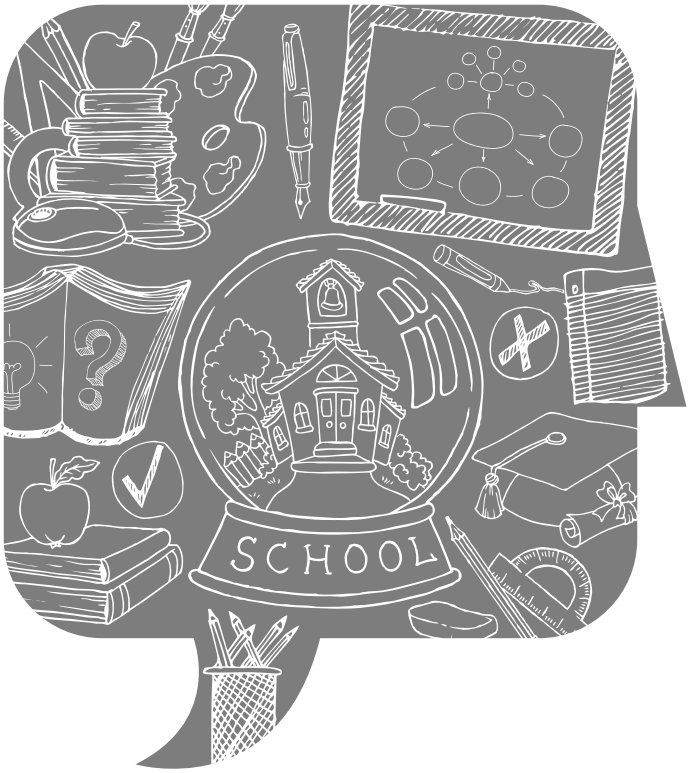
- **Teacher Resources**

  - ☐ Focus word vocabulary cards
  - ☐ Information about academic language and vocabulary instruction
  - ☐ Vocabulary assessments
  - ☐ Activities to develop discussion and debate in the classroom
  - ☐ Rubrics for discussion, debate, and argumentative writing
  - ☐ Professional learning opportunities
  - ☐ Interviews with the developers of the program
  - ☐ Videos of Word Generation classrooms
  - ☐ Topic lists
  - ☐ Focus word lists

  Much more!

analyze | factor | function | interpret | structure

This week's issue:
WHAT IS THE PURPOSE OF SCHOOL?



Questions for Classroom Discussion:

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Why do we go to school? Some people think the primary goal of education is giving knowledge to students. They feel there is specific information that all kids should know. For instance, they want kids to know what happened in the Revolutionary War and how the food chain works. Others **interpret** the main role of school as one of preparing students to join the workforce. They are most concerned about students learning particular skills, such as reading, writing, and math.

Some argue that schools should introduce a set of shared values, including liberty and justice. They believe this will help students understand the **structure** of our democratic government. For example, they feel it is important for students to understand that while each of the three branches of government has a different function, the three work together to make sure we all enjoy certain freedoms and live by the same rules.

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WHAT IS THE PURPOSE OF SCHOOL?

analyze | factor | function | interpret | structure

USE THE FOCUS WORDS *and alternate parts of speech

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Sample Sentence: Aftab **structured** his presentation so that there would be time for questions at the end.

Turn and Talk: When there is no school, how do you **structure** your day so that you don't get bored?

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WHAT IS THE PURPOSE OF SCHOOL?

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DO THE MATH

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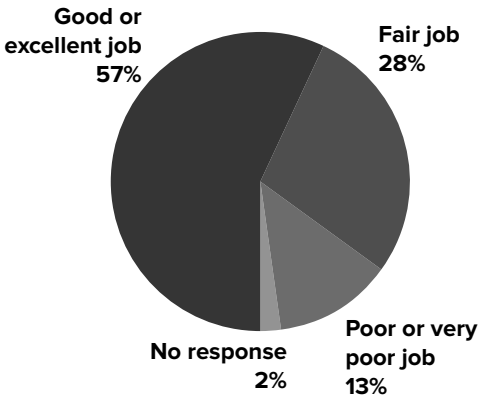
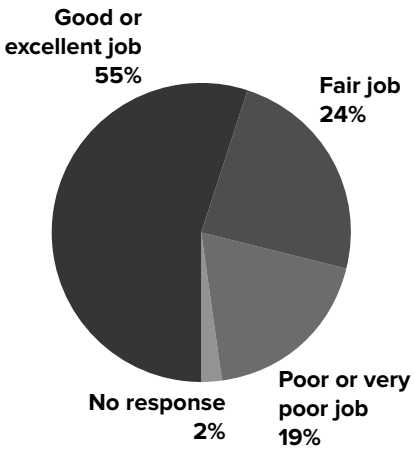
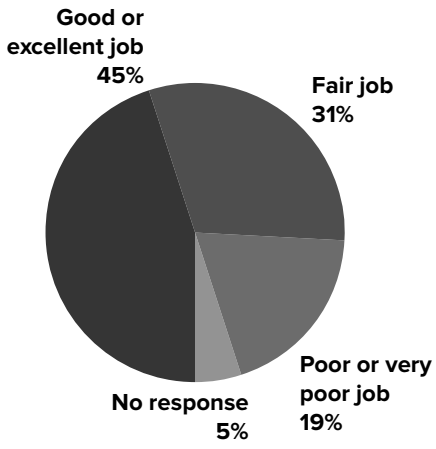


How well do local public schools prepare students to be good citizens?



How well do local public schools prepare students for the workforce?



Option 1: Which of the following is the best way to **interpret** the data shown in these three graphs?

A. Most American parents think that public schools do a good job of teaching job-related skills.
B. American parents are concerned that the next generation will not be good citizens.
C. Most American parents believe that public schools get students ready to go to college.
D. American parents are disappointed with today's public schools.

Option 2: Based on the graphs, what is the probability that an American parent thinks public schools do a good or excellent job of preparing students for college AND that they do a good or excellent job of preparing students for the workforce?

.57 x .45 = .2565, or 25.65%

Discussion Question: Many teachers believe that classrooms **function** more effectively when students are actively involved. In social studies, students might present an analysis of U.S. foreign policy and our relationship to other countries. In Spanish class, students might **interpret** and act out a play written by a Colombian author. In these cases, students prepare and present while the teacher acts as a guide. Is this kind of **structure** realistic for a math class? Or, when you're learning how to multiply or **factor** numbers, is it best for a teacher to give knowledge by explaining the facts?

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WHAT IS THE PURPOSE OF SCHOOL?

analyze | factor | function | interpret | structure

THINK SCIENTIFICALLY

The students in Ms. Kahn's class are learning how to **analyze** substances according to their properties.

"One important property of a substance is its density," says Ms. Kahn. "Can anyone tell me what density is?"

"Isn't it sort of like how massive something is?" says Marian. "I mean, that's not it exactly, but mass is an important **factor** in density... It's hard to explain. Density is sort of how tightly mass is packed into something."

"Yeah," Jamal adds, "density is how much mass a certain volume of something has. Say you have two things that are the same volume, but one has more mass. Then the one that's the same size but more massive is more dense."

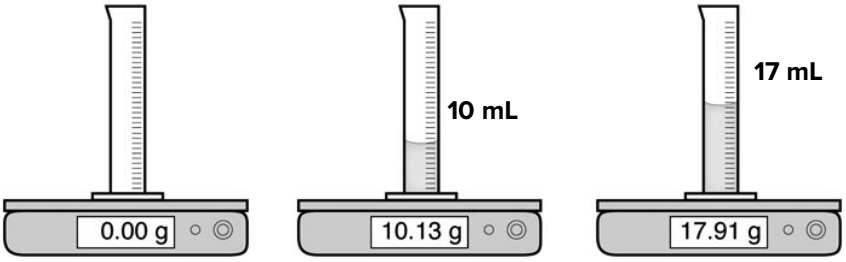
"Right," says Ms. Kahn. "Density is the ratio of mass to volume. We can write it as an equation, like this." Ms. Kahn writes **d = m/v** on the board and then says, "Density equals mass divided by volume. Scientists often compare the density of different substances to water, because water has a density of exactly one gram per milliliter. But don't take my word for it—see if you can figure out the density of water for yourselves."

Marian and Jamal set out to check the density of water, but each interprets Ms. Kahn's assignment differently.

Marian puts a graduated cylinder marked off in milliliters on a scale and resets the scale to zero so that it will not count the mass of the cylinder.

Then Marian pours some water into the cylinder and records the volume and mass of the water.

Next, Marian adds some more water and records the volume and mass again.



Finally, Marian calculates the density of water based on her measurements.

10.13 g/10 mL = 1.013 g/mL **17.91 g/17 mL = 1.054 g/mL**

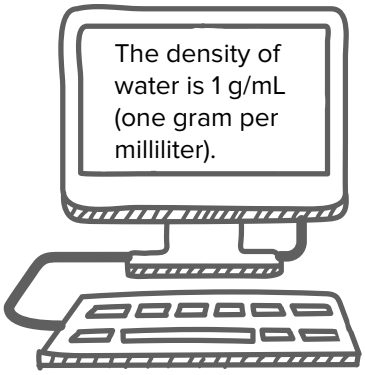
Take the average of the two measurements:
(1.013 + 1.054) ÷ 2 = 1.034.

So the density of water is about 1.034 g/mL

*How would you have **interpreted** the purpose of this assignment? How does it relate to the purpose of school?*

Answers will vary. The purpose of this assignment wasn't to learn how to calculate density, but to see that there are different ways of finding an answer —each with benefits and drawbacks. Encourage students to discuss whether they would have used Marian's, Jamal's, or another method to solve this problem.

Meanwhile, Jamal goes online and finds the following information on three reliable websites:



Which student do you think got the most accurate answer, Marian or Jamal?

Jamal

(A gram was originally defined as the mass of 1 mL of water.)

What might be some reasons for the difference in their answers?

There were minor measurement and instrument errors in Marian's experiment.

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WHAT IS THE PURPOSE OF SCHOOL?

analyze | factor | function | interpret | structure

DEBATE THE ISSUE

Pick one of these positions (or create your own).

A

❑ The primary **function** of school is to prepare students for the workforce.

OR

B

❑ The primary **function** of school is to teach students to **analyze**, to **interpret**, and to think for themselves.

OR

C

❑ The primary **function** of school is to prepare students for democratic citizenship.

OR

D

❑ The primary **function** of school is to make sure that all students have common knowledge about history, science, and mathematics.

OR

CREATE YOUR OWN

❑ _____

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Jot down a few notes on how to support your position during a discussion or debate.

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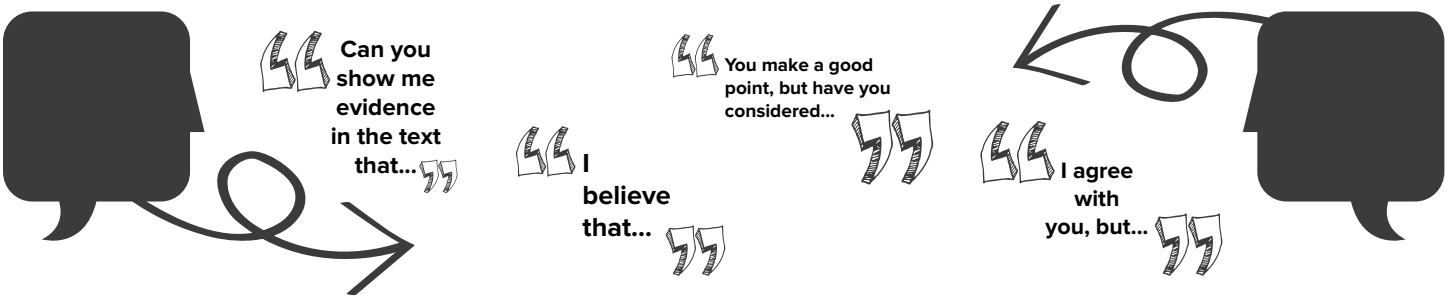
Be a strong participant by using phrases like these:



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WHAT IS THE PURPOSE OF SCHOOL?

analyze | factor | function | interpret | structure

TAKE A STAND

Support your position with clear reasons and specific examples. Try to use relevant words from the Word Generation list in your response.

analyze | factor | function | interpret | structure

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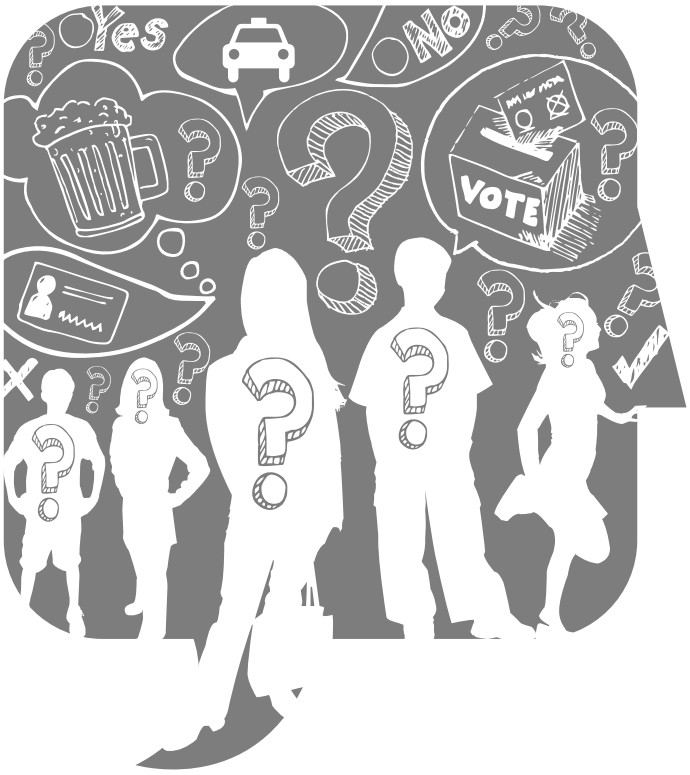
guideline | mature | ambiguous | due | status

This week's issue:
WHEN SHOULD SOMEONE BE CONSIDERED AN ADULT?



Questions for Classroom Discussion:

- Do you identify as a child, adult, or something else?
- Should there be one age at which all young people are considered to become adults? Or does it depend on the person?
- What does it mean to be an adult?
- Should it be possible for children to receive life sentences?
- What rights and responsibilities should children have? What rights and responsibilities should adults have?

Leboo is an adolescent member of the Maasai people in Kenya. He is preparing to hunt a lion with only a spear and shield. After the lion hunt, Leboo will be considered an adult in his Maasai community. In years past, and even now in certain places, young people were considered adults as soon as they completed a rite of passage, a special ceremony to mark a change of **status**. In the United States today, though, it is difficult to know when adulthood begins and childhood ends. The word "adult" is quite **ambiguous**, because the assignment of adult status varies across domains.

Most states have laws allowing marriage at the age of 18. But in some states, if a parent gives permission, girls can get married as young as 14.

The legal age for voting or joining the military is 18, but those under the age of 21 are not considered **mature** enough to buy alcohol or, in most states, to rent a car. And clients aged 21-25 are charged a large extra daily insurance fee by most car rental companies.

The Affordable Care Act allows parents to keep their children on their health insurance plans until they turn 26. This acknowledges that people under the age of 26 are less likely to have a stable job and lifestyle, typical markers of adulthood.

Due to their age, workers under 20 years old do not have to be paid the minimum wage during their first 90 days of work. This legal **guideline** is called the "youth minimum wage." Therefore, you are not an adult until age 20 according to the U.S. Department of Labor.

In at least 22 states, if you commit a crime at the age of 8, you can be charged as an adult. In fact, almost 3,000 people under the age of 18, some as young as 13, have been sentenced to life in prison without parole. This means that children can be sentenced to spend the rest of their lives in jail because of something they did in middle school. In fact, on any given day 10,000 people under age 18 are in the same prison system as adults.

Look at the student next to you. Do you consider this person an adult?

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WHEN SHOULD SOMEONE BE CONSIDERED AN ADULT?

guideline | mature | ambiguous | due | status

USE THE FOCUS WORDS

guideline *(noun)* a rule

Sample Sentence: New school lunch **guidelines** include more fruits and vegetables.

Turn and Talk: What are some important **guidelines** for behavior at school?

mature *(adjective)* showing adult qualities

Sample Sentence: Those under the age of 21 are not considered **mature** enough to buy alcohol or rent a car.

Turn and Talk: How can middle school students show that they are **mature**?

ambiguous *(adjective)* having more than one meaning or interpretation

Sample Sentence: The word "adult" is **ambiguous** because the assignment of adult status changes according to the situation.

Turn and Talk: Why is it **ambiguous** to tell someone to come over "around dinner time"?

due (to) *(preposition)* because of; caused by

Sample Sentence: **Due** to their immaturity, twelve-year-olds are not allowed to drive.

Turn and Talk: Should students be barred from participating in sports **due** to low grades?

status *(noun)* rank, position, or standing

Sample Sentence: In certain places, young people are considered adults only after completing a rite of passage to mark their change of **status**.

Turn and Talk: Would having a female president improve the **status** of women in the United States?

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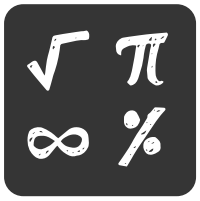
WHEN SHOULD SOMEONE BE CONSIDERED AN ADULT?



guideline | mature | ambiguous | due | status

DO THE MATH

More people die each year **due** to the harmful effects of cigarettes than from HIV, illegal drug use, alcohol, car accidents, and gun-related incidents combined. Cigarettes are especially addictive to the adolescent brain that is not yet **mature**. People who start smoking in childhood often become lifelong smokers and have a difficult time quitting later on. For this reason, strict **guidelines** limit tobacco advertising to children and it is illegal to sell tobacco products to people under the age of 18 in all U.S. states. Still, each day 3,900 children under 18 years of age will smoke their first cigarette, and 950 of them will become regular smokers.

Not only do many people start smoking as children, but thousands of children work picking tobacco, the plant that is used to make cigarettes! In the U.S., children as young as 12 can work on farms. Children who pick tobacco often report headaches, nausea, and dizziness. These are unambiguous signs of nicotine poisoning **due** to high levels of nicotine, the highly addictive chemical in cigarettes, absorbed through the skin. Toxic pesticides and heavy machinery present additional dangers to those picking tobacco.

Option 1: Which expression could be used to calculate the number of children who become regular smokers each year?

A. 950 + 365
B. 3,900 ÷ 950
C. 365 x 3,900
D. 365 x 950

Option 2: A group of children working on the Golden Dew Tobacco Farm was interviewed about how old they had been when they started picking tobacco. Their answers are below. Find the mean, median, and mode for this data set.

{12, 15, 13, 12, 14, 13, 13, 12, 14, 13}

Mean: 13.1; Median: 13; Mode: 13

Discussion Question: Guidelines that restrict tobacco marketing are meant to protect young people from the harmful effects of smoking. At the age of 18, teenagers achieve a new **status** at which they are considered **mature** enough to assume the risks of tobacco use. But children as young as 12 can work in tobacco fields to earn money, often under dangerous conditions. Why are the same children who work in tobacco fields considered too young to buy tobacco in a store? Should there be one age at which children can buy tobacco and work in tobacco fields? Or should things stay the way they are?

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WHEN SHOULD SOMEONE BE CONSIDERED AN ADULT?

guideline | mature | ambiguous | due | status

THINK SCIENTIFICALLY

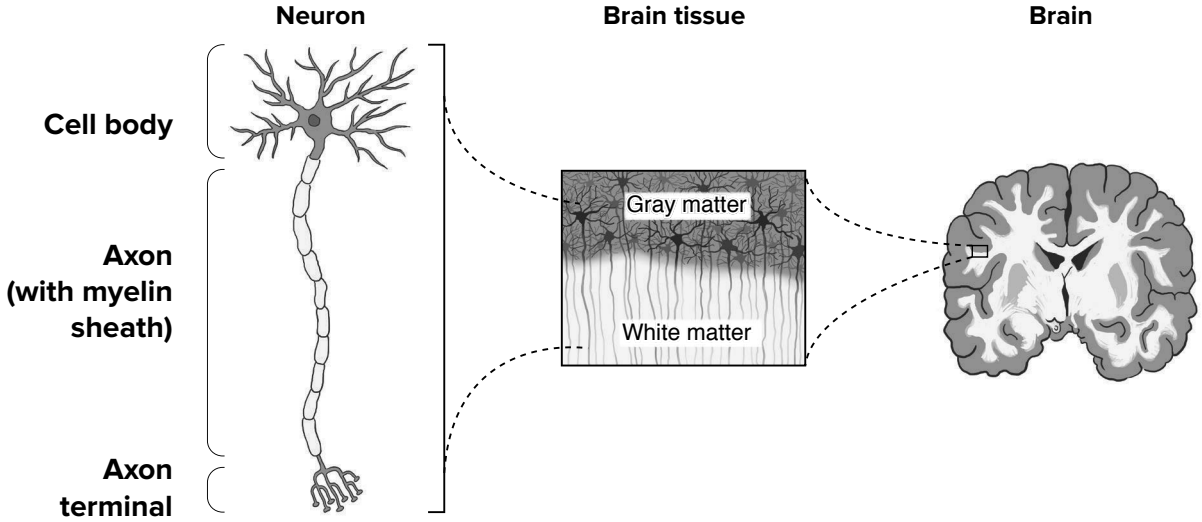
The students in Mr. Seemy's class were arguing about how **ambiguous** the **status** of adulthood is, and how varied the **guidelines** are for determining when someone is **mature**. They wondered whether there was any biological basis for defining adulthood. Raul, Lisa, and Aliyah found some articles about scientific research on brain development, and shared their findings with the class.

"The brain changes a lot as a person grows from childhood through adolescence and into adulthood," said Raul. "One important change is in the amount of gray matter and white matter in the brain."

Aliyah added, "The amount of gray matter peaks in the early teenage years, and then decreases as a person grows older. The amount of white matter increases. Gray matter in the brain is associated with learning."

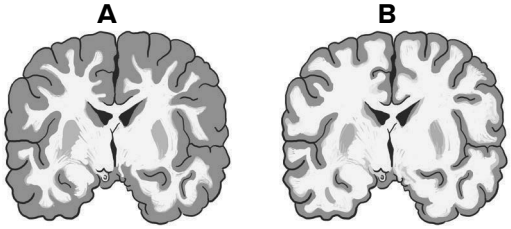
"So what causes the different appearance of gray matter and white matter?" Mr. Seemy asked. "How do they work differently?"

"Well, the brain is made of billions of nerve cells called neurons," Lisa responded. "Gray matter is made up mainly of the cell bodies of neurons. White matter is made up mainly of the long tails of the neurons (called axons). These tails are coated with a fatty substance called myelin, which give them a white appearance."



The illustration below shows the inside of two brains, labeled A and B. Based on the information above, which brain is the adolescent brain, and which is the adult brain? How do you know?

Brain A is most likely the adolescent brain because it has more gray matter, which peaks in the early teenage years. Brain B is most likely the adult brain because it has more white matter, which increases as someone gets older.



If the ratio of white to gray matter is a measure of how far one has gotten into adulthood, should we be using brain scans instead of chronological age to decide when people are allowed to drink alcohol, drive, and vote?

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WHEN SHOULD SOMEONE BE CONSIDERED AN ADULT?

guideline | mature | ambiguous | due | status

DEBATE THE ISSUE

Should there be one agreed upon legal age of adulthood for consuming alcohol, voting, driving, serving in the military, and being tried as criminal? Or is it justifiable to impose different **guidelines** for different domains?

Pick one of these positions (or create your own).

A ❑ Yes, there should be one, legal age of adulthood that is the same for all domains.

OR

B ❑ No, one agreed upon age of adulthood is unnecessary. Things are fine the way they are.

OR

CREATE YOUR OWN ❑

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Jot down a few notes on how to support your position during a discussion or debate.

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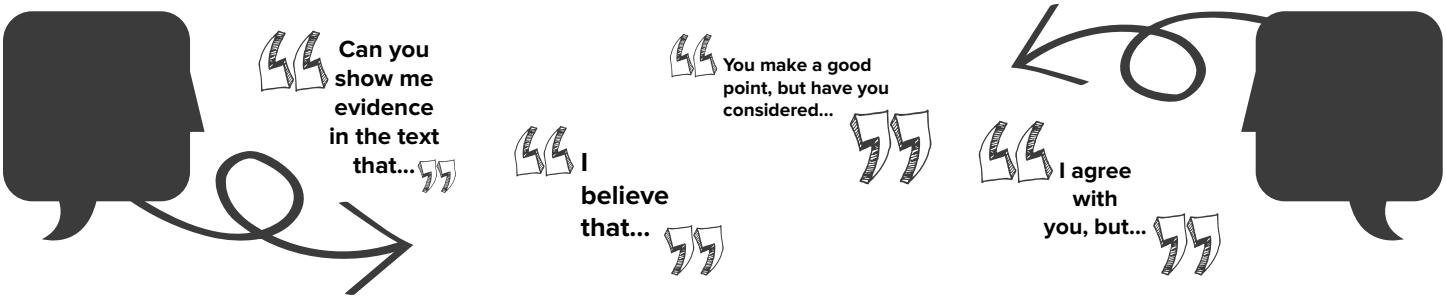

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WHEN SHOULD SOMEONE BE CONSIDERED AN ADULT?

guideline | mature | ambiguous | due | status

TAKE A STAND

Support your position with clear reasons and specific examples. Try to use relevant words from the Word Generation list in your response.

guideline | mature | ambiguous | due | status

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UNIT 1.03

complexity | culture | element | resourceful | tradition

This week's issue:

WHAT MAKES AN AMERICAN?

At least 39 million residents of the U.S. are classified as "foreign-born" – born outside the U.S. Though some of those 39 million are here temporarily for things like school or work, most are now U.S. citizens or permanent residents. Why do so many people want to come join American society? Do they come just for economic or educational reasons, or is there something about the American **culture**, or way of life, that attracts these foreign-born residents?

Advice to foreign visitors to the U.S. might include the following information about American cultural beliefs: Americans value liberty, individuality, privacy, equality, informality, and directness. American **traditions** emphasize values like hospitality (especially Thanksgiving), generosity (especially Christmas), and competition (especially baseball and football). Americans are said to be **resourceful** and hardworking. Furthermore, a major feature of American society is its diversity – different ethnicities, races, and languages are said to blend together in what is called the "melting pot." The term "melting pot" suggests that different ingredients are mixed together in a way that increases the **complexity** of flavors in the dish – like a delicious soup or stew.

But is a melting pot a good metaphor for American culture? Are the **elements** of culture and tradition mentioned above widely shared by immigrants as well as native-born Americans? Do foreign-born residents, even those who become American citizens, really melt into American society? Of course, it is easy for an immigrant to roast a turkey at Thanksgiving, send holiday cards, and root for their favorite baseball team during the World Series, but does that mean the melting pot is real?

What about immigrants who live in ethnic enclaves – places where almost all the residents come from the same background and speak the same language? What about the families that send their children to special classes in their home language? What about politicians and citizens who want to stop immigration and send undocumented immigrants back to their countries of origin? Has American society lost its capacity to tolerate diversity and absorb new elements? Do these things mean that the melting pot is a myth?

Do you think the melting pot is a good description of American society, or has America become a place where immigrants maintain their identity without adopting American traditions and beliefs?

Questions for Classroom Discussion:

- What are some examples of traditions or values that are considered typically American?
- Does culture divide people or bring them together?
- What makes American culture complex?
- Do you think the "melting pot" is a good metaphor for American society?

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WHAT MAKES AN AMERICAN?

complexity | culture | element | resourceful | tradition

USE THE FOCUS WORDS

complexity *(noun)* the quality of having many interrelated parts; the quality of not being simple

Sample Sentence: The **complexity** of English spelling makes it difficult for some people to learn.

Turn and Talk: Which task has more **complexity**: completing a math assignment or writing a rap song? Why?

culture *(noun)* a way of life; a group of people who share a particular way of life

Sample Sentence: The **culture** in one region of India can be very different from the **culture** in another region: People can speak different languages and eat different foods even though they live in the same country.

Turn and Talk: Which country would you like to visit to experience a new **culture**? Explain.

element *(noun)* a piece, part, or component

Sample Sentence: The ability to jump high is an important **element** of playing basketball.

Turn and Talk: What **elements** are important to being a great athlete?

resourceful *(adjective)* inventive; capable

Sample Sentence: Shanaya proved how **resourceful** she could be when she made a necklace with her father's old tools.

Turn and Talk: How are animals that live in the city (squirrels, birds, etc.) **resourceful**?

tradition *(noun)* a regular practice; a custom that is repeated over time

Sample Sentence: Eating together at Thanksgiving has become an important **tradition** for Gary's family.

Turn and Talk: What new **traditions** would you like to start?

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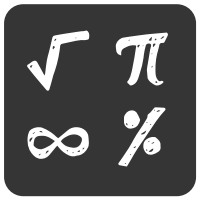
WHAT MAKES AN AMERICAN?



complexity | culture | element | resourceful | tradition

DO THE MATH

Immigrants have built and shaped the United States. Through the years, these **resourceful** Americans endured many hardships, from discrimination to the Great Depression. They brought cultural **elements** like food, dress, and religious **traditions** from around the world. The **complexity** of our national **culture** reflects the great diversity of our people. Let's think about that diversity mathematically.

This table shows the 20 most common ancestries reported on the 2013 American Community Survey. Don't forget that many people have multiple ancestries, and can check multiple boxes. For example, if all four of your grandparents emigrated from different countries, you might check four boxes. But if you're the first person in your family to immigrate to America, it's more likely that you will report one ancestry.

Largest reported ancestries, by percentage of U.S. population					
1	German	13.5%	**11**	Central American	1.5%
2	Mexican	10.7%	**12**	Dutch	1.3%
3	Irish	9.8%	**13**	Norwegian	1.3%
4	English	7.3%	**14**	Swedish	1.2%
5	American	6.1%	**15**	European	1.0%
6	Italian	5.0%	**16**	South American	1.0%
7	Polish	2.7%	**17**	Chinese	1.0%
8	French	2.5%	**18**	Scotch-Irish	0.9%
9	Puerto Rican	1.6%	**19**	Subsaharan African	0.8%
10	Scottish	1.6%	**20**	Russian	0.8%

Option 1: According to the table, which of the following statements is true?

A. Most Americans have German ancestry.
B. More Americans reported having Chinese ancestry than Puerto Rican ancestry.
C. More Americans reported having Italian ancestry than English ancestry.
D. More Americans reported having German ancestry than any other ancestry.

Option 2: If 2,500 Americans were chosen randomly, how many would you predict would be of Mexican ancestry? What about Dutch ancestry? What is a reasonable way of dealing with decimals when working with questions like these?

Mexican ancestry: 267 or 268. Dutch ancestry: 32 or 33. There is no such thing as a fraction of a person, so it's best to round answers to whole numbers.

Discussion Question: Our national **culture** blends **elements** of many different cultural **traditions**, and yet Americans feel great pride in being American. The responses to the question about ancestry on the U.S. Census hint at the **complexity** of Americans' cultural identity. For example, about 6% of Americans – over 20 million people – said their ancestry is "American" although the question was worded to encourage a different answer. What does this mean? Is it possible to have American ancestry? Or do these people just have such strong feelings about the U.S. that they consider themselves "American" regardless of their earlier ancestry? What do you think?

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WHAT MAKES AN AMERICAN?

complexity | culture | element | resourceful | tradition

THINK SCIENTIFICALLY

The students in Ms. Kahn's class are talking about the cultural makeup of the United States. "There are so many different **elements** of our **culture** that people have brought from all over the world," says Mario, "but I feel like there's a shared **tradition** of resourcefulness that unites us as Americans. For example, my great grandparents arrived from Sicily in the 1920s. It took a lot of guts to leave behind everything they knew and start over. They had to be **resourceful** and responsible in order to build a new life out of virtually nothing. It's the same for lots of groups: The people who came were the risk takers, so wherever they came from, they had something in common."

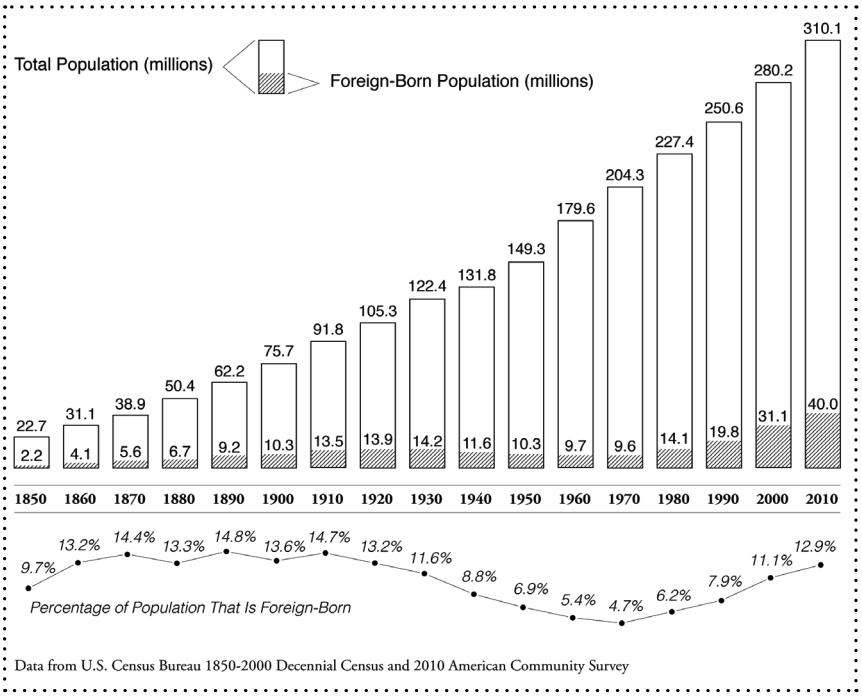
"Okay, but don't forget that not everyone made that kind of choice to come here," says Alyssa. "There were slaves from Africa, British criminals sent here as punishment during colonial times, and Native Americans facing invasion. Lots of different groups have been **resourceful**, even those that didn't choose to immigrate. In my opinion, what's most impressive about the U.S. isn't our shared **tradition**, but the **complexity** of all the different **traditions**."

"Most of my family came from Japan before World War II, and from Hawaii before it became a state in 1959," says Sumiko. "But one of my grandmothers was descended from Europeans who arrived in the British colonies before 1776. I wonder if immigration has increased or decreased over the last century or two. Immigration is in the news all the time. I bet we're more of a nation of immigrants now than we've ever been before."

"I doubt it," says Alyssa.

"Maybe some of you could do some research on U.S. immigration over time," says Ms. Kahn.

Mario, Alyssa, and Sumiko found some statistics on U.S. immigration since 1850 and presented the following chart to the class.



Over the time period represented in this table, what has been the trend in the total population numbers?

The total population has been continuously growing larger.

Has the foreign-born population changed in the same way? Explain.

No. In the late 1800s, the foreign-born population grew (and the foreign-born percentage of the population remained fairly steady). From 1910 to 1970, the foreign-born population grew at a slower rate and then declined. After 1970, the percentage of the population that was foreign-born began to steadily grow again.

What's the most accurate way to describe the difference between the data for 1910 and for 2010?

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WHAT MAKES AN AMERICAN?

complexity | culture | element | resourceful | tradition

DEBATE THE ISSUE

The United States is a country of immigrants. Except for Native Americans, people who live here either were born outside the United States or have ancestors who immigrated here years ago. As a result, parts of different **cultures** have been introduced and lost, or introduced and celebrated. The question remains, however, what does it mean to be an American? Do immigrants have to give up their **culture** (clothing, foods, traditions, language) or can they keep all these things and still be considered American?

Pick one of these positions (or create your own).

A

❑ To be real Americans, immigrants must abandon the **culture** from their countries of origin.

OR

B

❑ Immigrants can maintain the **culture** from their countries of origin and still be real Americans.

OR

CREATE YOUR OWN

❑ _____

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Jot down a few notes on how to support your position during a discussion or debate.

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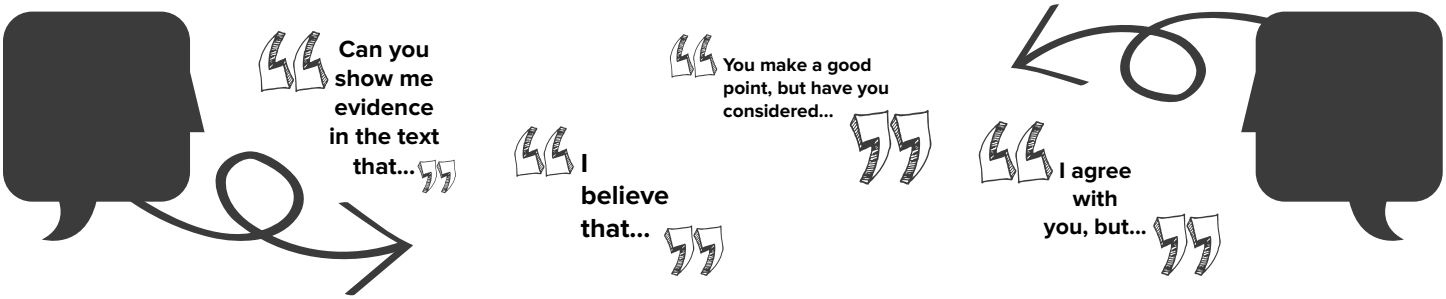

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WHAT MAKES AN AMERICAN?

complexity | culture | element | resourceful | tradition

TAKE A STAND

Support your position with clear reasons and specific examples. Try to use relevant words from the Word Generation list in your response.

complexity | culture | element | resourceful | tradition

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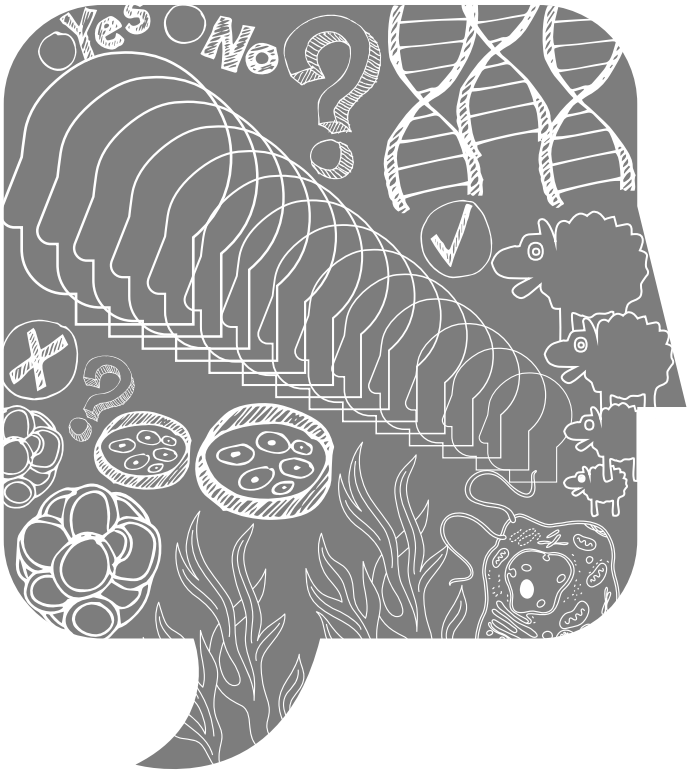
This week's issue:
CLONING: THREAT OR OPPORTUNITY?



What makes you who you are? Both your genes and your experiences have an impact on your identity. Your genes contain information about your own unique **design**. They help determine many of your **features**, such as your eye color, your height, and which hand you use to write.

Scientists have invented a process called cloning that allows them to copy the genes of organisms, or living things. Scientists **transfer** some of an adult organism's genes to a new egg. A clone, or copy, of the original organism starts to develop after the genes have been transferred. Researchers are using one type of cloning to study new treatments for diseases like cancer. They believe that cloning has the **potential** to help people with serious illnesses. Many farmers clone plants to produce crops featuring qualities that people like, such as juiciness in tomatoes. Some farmers are interested in cloning animals, too. For instance, they want to clone cattle that produce particularly tasty and tender beef.

In the future, scientists may be able to clone a person. This process could create identical twins born at different times. But is that a good idea? Many people worry about how cloning would **impact** our lives. And what would happen if people could design other people? What if, for example, leaders could choose the features they wanted their soldiers to have and then make an army of clones? What if parents could clone their children? Should people be allowed to clone their pets? How might we take advantage of the benefits cloning offers while preventing potential problems?

Questions for Classroom Discussion:

- What would happen if your genes were transferred to a new human egg?
- What are some potential benefits of cloning?
- What impact could cloning have on the food we eat?
- If you could design an army of clones, what features would they have?
- What could go wrong if people were able to clone their pets?

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CLONING: THREAT OR OPPORTUNITY?

design | feature | impact | potential | transfer

USE THE FOCUS WORDS *and alternate parts of speech

design *(noun)* a plan; a blueprint; a drawing

Sample Sentence: Your genes contain information about your own unique **design**.

Turn and Talk: If you could create the **design** for a new park in your neighborhood, what would you include?

***design** *(verb)* to plan; to outline or sketch

Sample Sentence: For the Future Inventors competition, Jabari **designed** an unbreakable smartphone screen.

Turn and Talk: Do you think it's possible to **design** a perfect school? Why or why not?

feature *(noun)* quality, trait, characteristic

Sample Sentence: Genes help determine many of your **features**, such as your eye color and height.

Turn and Talk: What is one **feature** of a smartphone that you think is necessary or important?

***feature** *(verb)* to include or display

Sample Sentence: Jackson's final project **featured** a live performance of Chief Joseph's "Surrender" speech.

Turn and Talk: Should reality television shows **feature** children? Why or why not?

impact *(verb)* to affect or influence

Sample Sentence: Many people worry about how cloning will **impact** our lives.

Turn and Talk: What is something you can do every morning to positively **impact** your day?

***impact** *(noun)* effect; influence

Sample Sentence: Hand washing has had an enormous **impact** on the prevention of disease.

Turn and Talk: Who has had a greater **impact** on your personality: your family or your friends?

potential *(noun)* possibility, future capability

Sample Sentence: They believe that cloning has the **potential** to help people with serious illnesses.

Turn and Talk: Do you think that computers have the **potential** to eliminate books?

***potential** *(adjective)* possible in the future

Sample Sentence: Companies try to attract **potential** customers with catchy slogans and bright colors.

Turn and Talk: What do you think are some **potential** problems with cloning?

transfer *(verb)* to move from one place to another

Sample Sentence: Scientists **transfer** some of an adult organism's genes to a new egg.

Turn and Talk: Why is it important to **transfer** photos from your phone to a computer or hard drive?

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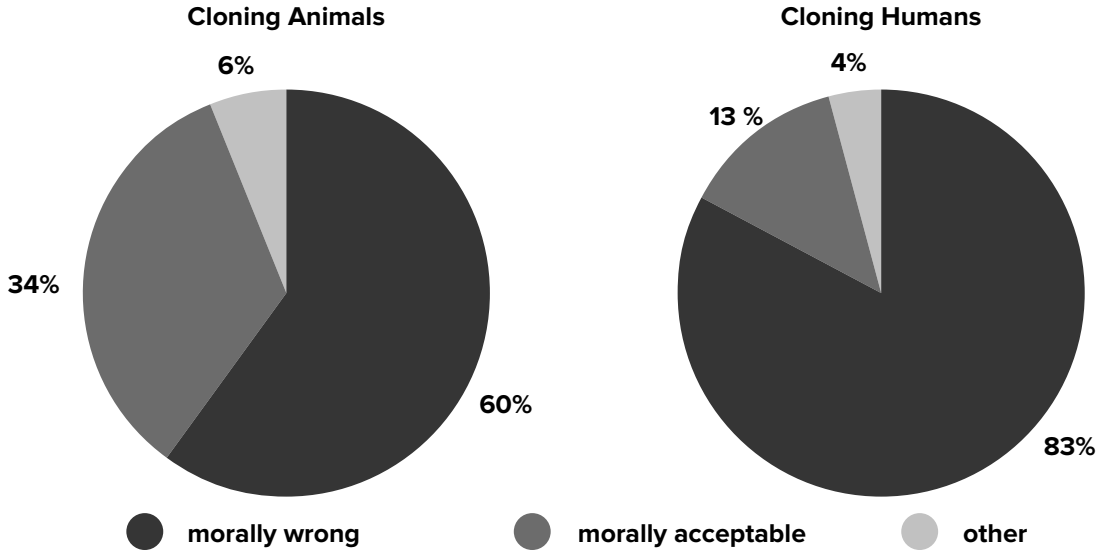
CLONING: THREAT OR OPPORTUNITY?

design | feature | impact | potential | transfer

DO THE MATH

Cloning an organism means **transferring** its genes to a new egg, and allowing a copy to develop with the same **design** as the original. Scientists are already cloning cows for the beef industry. They choose cows with especially tender meat or other desirable **features**. There are many other **potential** applications of cloning. Should we clone endangered species? Many people need new organs to survive. Are clones of human organs the answer? Despite the **potential** for good, many people worry about the **impact** of this new technology on our society.

Here are the results of a 2014 Gallup poll that told how Americans felt about cloning.



Option 1: Based on the graphs, which of the following statements is true?

A. Most Americans think that cloning humans is morally okay.
B. Most Americans think that cloning humans is morally equivalent to (or the same as) cloning animals.
C. Most Americans think that neither animals nor humans should be cloned.
D. Most Americans think that cloning animals is morally okay.

Option 2: True or False: Based on the graphs, 23% of Americans believe that cloning animals is okay, but cloning people is not.

False. This would be true only if all of the people who disagree with animal cloning also disagree with human cloning. Then, 83% - 60% = 23%. This seems likely, but based on the information given, we cannot rule out the possibility that some people find animal cloning morally wrong but human cloning morally acceptable.

Discussion Question: Many people believe that each human being is uniquely **designed** by God. Our society is built on the idea that each human has certain responsibilities and rights. Is this idea in danger? Are you a unique and special individual, or are you simply a collection of **features**, like hair color, height, and IQ? What **impact** would human cloning have on the idea of human rights? Would human rights **transfer** to human clones? Why do so many Americans think cloning is wrong? What are some **potential** problems with cloning humans?

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CLONING: THREAT OR OPPORTUNITY?

design | feature | impact | potential | transfer

THINK SCIENTIFICALLY

The students in Mr. Seemy's class are arguing about the **potential impact** of cloning on society. Suddenly Chris says, "Wait a minute. I'm not sure I even understand what cloning is. I imagine some sort of bizarre copy machine, or a giant test tube or fish tank with copies of people and animals growing in it, but I have a feeling that's just science fiction."

Miranda says, "It has something to do with DNA, the molecule that controls what physical **features** get **transferred** from parents to their children. Usually a baby gets a mix of its parents' DNA, but cloning somehow involves copying just one individual's DNA to make another individual. But I don't know how that's actually done."

"The first mammal that scientists cloned was a sheep, back in 1996," says Mr. Seemy. "They named the cloned sheep Dolly, and she was probably the world's most famous sheep! Why don't you two do a little research on how Dolly was cloned?"

Chris and Miranda did some research and put together the following short description of the cloning process used to produce Dolly. This is still the general approach used for cloning animals.

On the left is Miranda and Chris's simplified five-step summary of how to clone an animal. But the images on the right, **designed** to illustrate the process, are all mixed up. See if you can match each step to its correct illustration. The first one is done for you.

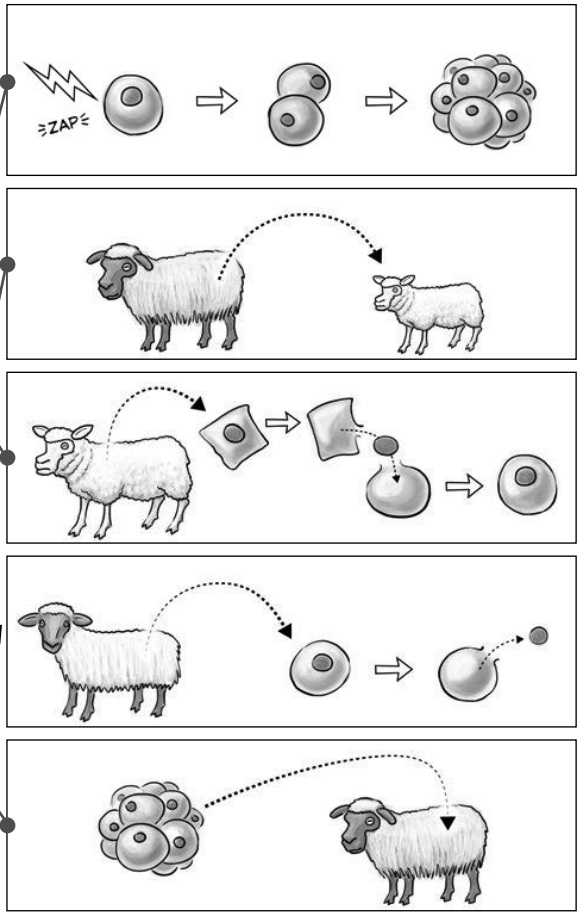
Step 1: Take an egg cell from a female sheep and remove the nucleus from the egg. (The nucleus is where a cell's DNA is.)

Step 2: Take a non-reproductive cell (not an egg or sperm cell) from the sheep you want to clone. **Transfer** the nucleus from that cell to the nucleus-free egg.

Step 3: Give the egg cell a small electric shock to make it start dividing. As it divides, it grows into an embryo, which is an unborn organism in the earliest stages of development.

Step 4: Put the embryo into another sheep who will be the surrogate (substitute) mother.

Step 5: The surrogate mother sheep gives birth to a sheep that is a genetic copy—a clone—of the sheep that provided the DNA from its non-reproductive cell.



*How would you **design** a cloning experiment to produce a male sheep? A female sheep?*

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CLONING: THREAT OR OPPORTUNITY?

design | feature | impact | potential | transfer

DEBATE THE ISSUE

Pick one of these positions (or create your own).

A

❑ Cloning of any kind should be forbidden.

OR

B

❑ Cloning of plants should be allowed, but cloning of animals and humans should be forbidden.

OR

C

❑ Cloning should be allowed for research about treating diseases (therapeutic cloning), but human cloning (reproductive cloning) should not be allowed.

OR

CREATE YOUR OWN

❑ _____

_____

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Jot down a few notes on how to support your position during a discussion or debate.

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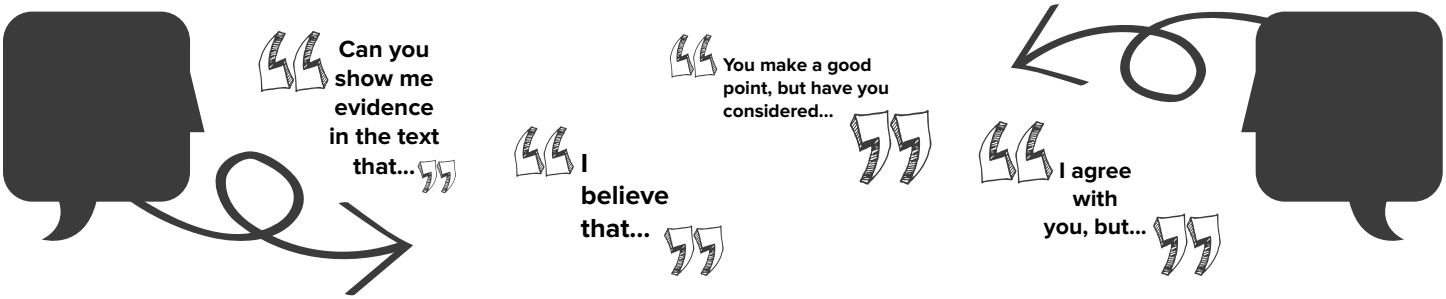
Be a strong participant by using phrases like these:



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CLONING: THREAT OR OPPORTUNITY?

design | feature | impact | potential | transfer

TAKE A STAND

Support your position with clear reasons and specific examples. Try to use relevant words from the Word Generation list in your response.

design | feature | impact | potential | transfer

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This week's issue:

DOES RAP MUSIC HAVE A NEGATIVE IMPACT ON YOUTH?

Questions for Classroom Discussion:

- Are people's concerns about the dangers of rap music valid?
- Do you think that rap music contributes to violent or aggressive behavior?
- What does rap music demonstrate about American culture?
- Do you think labeling CDs with a warning is sufficient to keep kids from hearing music that is disrespectful?
- Do you think rap music has had considerable influence on today's kids, either positive or negative?

Some people believe that rap music has had **considerable** influence on children and teenagers, most of which has been negative. They claim that the lyrics are often too violent and especially insulting to women. Thus, they say, rap has **contributed** to aggression among young people and to behavior that disrespects women.

But is that a **valid** claim? Supporters of rap music say the songs **demonstrate** a different face of American culture than the one we usually see on television or in newspapers. They think it's important for rappers' voices to be heard. Many people argue that violent individuals who listen to rap were probably violent before ever hearing this type of music. Thus we can't blame rap for their aggressive actions. Still others say that rap is a form of creative expression – this generation's poetry. They point to rap artists who create positive images for today's youth.

However, some parents are worried about the messages conveyed by rap and other explicit music. One group, the Parents Music Resource Center, asked the music industry to label explicit songs and albums with a warning. Many music fans consider this a form of artistic censorship that has no place in a free society.

Do you think that listening to rap leads to aggression? Should we have rules to prevent rap artists from talking about violence, especially violence against women? What would be **sufficient** evidence, in your view, to support the claim that rap has a negative impact on youth?

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DOES RAP MUSIC HAVE A NEGATIVE IMPACT ON YOUTH?

considerable | contribute | demonstrate | sufficient | valid

USE THE FOCUS WORDS

considerable *(adjective)* large; important

Sample Sentence: Practicing my violin each night had a **considerable** effect on how well I played in the spring concert.

Turn and Talk: Think of an activity you could do for thirty minutes a day to make a **considerable** difference in your health.

contribute *(verb)* to add to

Sample Sentence: Our class raised $300 and gave it to the Red Cross to **contribute** to the relief efforts in Haiti after the earthquake.

Turn and Talk: How can each member of a community **contribute** to keeping it clean?

demonstrate *(verb)* to show; to display

Sample Sentence: Raphael **demonstrated** how responsible he was by cleaning his room, doing all of his homework, and taking out the trash.

Turn and Talk: Name some ways animals **demonstrate** that they feel threatened.

sufficient *(adjective)* enough; adequate

Sample Sentence: Ms. El-Amin told Jalisa that she had done **sufficient** revising and could begin the final draft of her essay.

Turn and Talk: Does your school offer a **sufficient** range of extracurricular activities? Explain.

valid *(adjective)* defensible; true

Sample Sentence: Mr. Jones said that “having a bad hair day” was not a **valid** excuse for Kevin to wear his hat in class.

Turn and Talk: Can you think of a **valid** reason for the U.S. to go to war with another country?

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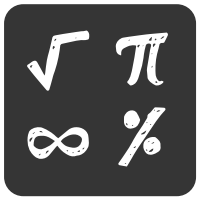
DOES RAP MUSIC HAVE A NEGATIVE IMPACT ON YOUTH?



considerable | contribute | demonstrate | sufficient | valid

DO THE MATH

Does rap music **contribute** to violence? A **considerable** number of rap songs talk about hurting and killing people, especially women. However, this is not **sufficient** evidence that rap itself is dangerous. Researchers have tried to **demonstrate** connections between rap music and aggressive behavior in many different studies. They try to establish **valid** conclusions by keeping many possibilities in mind. For example, even if rap listeners exhibit violent behavior, the music itself may not be the cause.

One study compared two groups: students who watched rap music videos for 14 or more hours each week, and students who rarely or never watched them. The students who watched the videos for at least 14 hours each week showed the following characteristics, as compared to the other group of students:

- They were 3 times more likely to hit a teacher.
- They were over 2.5 times more likely to get arrested.

Option 1: Based on the information above, is the following conclusion **valid** or invalid?

Students who watched 14 or more hours of rap music videos each week were more likely to hit a teacher than to get arrested.

A. The conclusion is **valid**.
B. The conclusion is invalid.

The conclusion is invalid. Note: There is not enough information to make that conclusion. We know that high-frequency viewers were more likely to hit a teacher and more likely to get arrested than low-frequency viewers, but we do not know how often teachers were hit or how often arrests were made overall.

Option 2: Manny watches 7 hours of rap music videos each week. Based on the information above, is the following conclusion **valid** or invalid?

Manny is 1.5 times more likely to hit a teacher than a student who rarely or never watches rap music videos.

A. The conclusion is **valid**.
B. The conclusion is invalid.

Note: We have no reason to believe that the relationship between watching rap music videos and hitting a teacher is linear. Here is an example of a linear relationship: Alex's father pays her $2 for each book she reads. We know that each book brings $2, and we could draw a straight line on a graph representing the relationship between books read and dollars received. In the real world, most relationships are not linear. For example, we know that eating healthy foods contributes to a healthy body and a long life, but we would not expect each fresh apple a person eats to add a certain measureable value to her quality of life or a predictable number of seconds to her life expectancy.

Discussion Question: What if researchers could **demonstrate** a **valid** cause-and-effect relationship between rap music and violent behavior? For example, what if researchers could show that nonviolent teens became violent after listening to rap? Would this be a **sufficient** reason for us to ban certain songs or artists? The Constitution gives **considerable** protection to free speech. However, not all speech is protected. Words that endanger others (such as, in one famous example, yelling "Fire!" in a crowded theater) can be banned. What can you **contribute** to this debate? Where should we draw the line between free speech and public safety?

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DOES RAP MUSIC HAVE A NEGATIVE IMPACT ON YOUTH?

considerable | contribute | demonstrate | sufficient | valid

THINK SCIENTIFICALLY

"I heard that our principal, Ms. Jackson, is considering banning all rap music at school," said Anthony.

"Why on Earth would she do that?" asked Haley. "It makes no sense, and it's not fair. I like having rap songs played over the loudspeakers before my basketball games. It helps me get pumped up."

"Ms. Jackson thinks listening to rap **contributes** to school violence," said Anthony.

"Does she have any evidence to **demonstrate** that's true?" asked Jamal.

"She checked the playlists of all the kids who got into fights last semester," said Anthony, "and she found that 85 percent of them had rap music. She figures that is **sufficient** evidence against rap, and that banning rap will lead to less fighting."

Haley frowned. "That's not a **valid** conclusion," she said. "I bet 85 percent of kids who got into fights wore pants, too, but that's not a reason to ban pants!"

Ms. Kahn laughed. "That's an interesting way of making your point, Haley," she said. "It sounds like you doubt that the correlation she used was **sufficient** evidence to show causation. Maybe you should do some research and see if you can come up with some useful data for Ms. Jackson to consider."

Haley, Jamal, and Anthony spent a week conducting surveys among their classmates.

Come up with data that they could use to **demonstrate** that rap music **contributes** to school violence.

Answers will vary.

Come up with data that they could use to **demonstrate** that rap music <u>does not</u> **contribute** to school violence.

Answers will vary.

*Suppose that Haley, Jamal, and Anthony find that students who fight in school listen to significantly more rap music than students who do not fight in school. Is this **sufficient** evidence to prove that rap music **contributes** to violence? Is it possible that there are other factors at play? Explain your thinking.*

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DOES RAP MUSIC HAVE A NEGATIVE IMPACT ON YOUTH?

considerable | contribute | demonstrate | sufficient | valid

DEBATE THE ISSUE

Pick one of these positions (or create your own).

A

❑ Rap songs should not be censored.

OR

B

❑ Rap songs should be censored.

OR

CREATE YOUR OWN

❑ _____

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Jot down a few notes on how to support your position during a discussion or debate.

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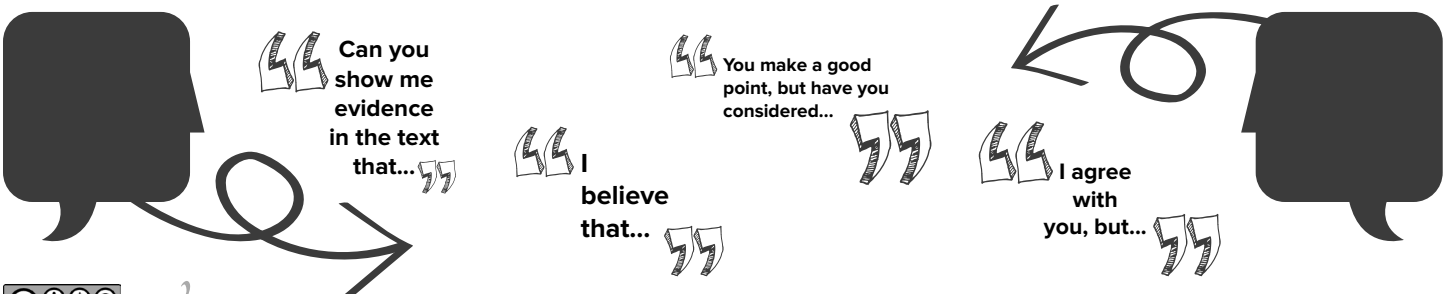

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DOES RAP MUSIC HAVE A NEGATIVE IMPACT ON YOUTH?

considerable | contribute | demonstrate | sufficient | valid

TAKE A STAND

Support your position with clear reasons and specific examples. Try to use relevant words from the Word Generation list in your response.

considerable | contribute | demonstrate | sufficient | valid

SERP © 2015

rely | react | alternative | justify | proportion

This week's issue:
ANIMAL TESTING: IS IT NECESSARY?

Animals are used in research by scientists seeking cures for disease. They are also used by pharmaceutical and cosmetic companies to test drugs, makeup, lotions, soaps, and shampoos. Why do we **rely** on animals to test our products for safety? Since animals share many genes and organs with humans, scientists say that testing new products on animals first can protect humans from potentially harmful effects of these products.

Many pharmaceutical researchers rely on animal testing to determine if new medicines could cause harmful or fatal reactions in humans. Researchers **justify** their choice by saying that only a small **proportion** of research animals are used in painful and dangerous tests.

If animal testing is designed to protect humans, then why do so many people **react** negatively to it? Today, more and more people will not buy products tested on animals because they consider animal testing cruel and unnecessary. These animal rights defenders say that even one animal used in dangerous testing is too many. Many of these people are willing to buy shampoo or laundry detergent that is a bit more expensive in order to avoid products tested on animals. Companies that use **alternative** methods of testing their products benefit from advertising to these consumers.

What do you think? Is it okay to test drugs or makeup on animals? Do humans have more rights than animals? Is animal testing justified because it helps humans?

Questions for Classroom Discussion:

- Who relies on animal testing, and for what purposes?
- How do scientists justify using animals to test products for humans?
- Why do some people react negatively to the practice of animal testing?
- What proportion of products that you use do you think might be tested on animals?
- What might be some alternatives to testing products on animals?

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ANIMAL TESTING: IS IT NECESSARY?

rely | react | alternative | justify | proportion

USE THE FOCUS WORDS *and alternate parts of speech

rely *(verb)* to depend

Sample Sentence: Why do we **rely** on animals when we test our products for safety?

Turn and Talk: Whom do you **rely** on for advice when you are facing a difficult problem?

react *(verb)* to respond

Sample Sentence: If animal testing is designed to protect humans, then why do so many people **react** negatively to it?

Turn and Talk: How would you **react** if you found out that an animal you knew was being mistreated?

alternative *(adjective)* other, different

Sample Sentence: Companies that use **alternative** methods of testing products advertise to people who avoid products tested on animals.

Turn and Talk: Instead of arguing, what are some **alternative** ways of solving a disagreement?

***alternative** *(noun)* different option or possibility

Sample Sentence: Dancing and playing team sports are **alternatives** to exercising in a gym.

Turn and Talk: What are some **alternatives** to taking medicine when you have a headache?

justify *(verb)* to show or prove to be right; to defend

Sample Sentence: Some people argue that helping humans does not **justify** animal testing.

Turn and Talk: Is it possible to **justify** copying someone else's homework?

proportion *(noun)* fraction; compared amounts; amount as compared to a whole

Sample Sentence: Only a small **proportion** of medical researchers inflict pain or harm on animals.

Turn and Talk: What **proportion** of your classmates have you known for more than two years?

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ANIMAL TESTING: IS IT NECESSARY?

rely | react | alternative | justify | proportion

DO THE MATH

Many different groups, from makeup companies to cancer research labs, use animal testing. Some look for **alternatives** to animal tests. Others try to **justify** their work by saying that animal testing saves money and human lives. It is difficult to find reliable statistics about how many animals are used for testing in the U.S. each year. One estimate is 21 million animals. Some people **react** differently to animal testing depending on what kind of animal is being used. Experimenting on dogs, for example, may seem worse than using rats. A large **proportion** of test animals are rats, mice, and other rodents. Some organizations have estimated that 90% of research animals in the U.S. are rodents.

Option 1: According to the estimates given above, how many of the 21 million test animals are rodents?

A. 17,800,000
B. 18,000,000
C. 18,500,000
D. 18,900,000

Option 2: The Humane Society estimates that 2.4 million dogs and cats are euthanized, or killed, each year due to overpopulation. According to the U.S. Department of Agriculture, nearly 100,000 cats and dogs were used for animal testing in 2010.

Based on the information above, fill in the blank:

About _____ times as many dogs and cats are euthanized due to overpopulation as are used for animal testing each year. (Hint: To solve the problem quickly, use exponents.)

$(2.4 \times 10^6) / (1 \times 10^5) = 2.4 \times 10^1 = 24$

Discussion Question: When researchers estimated that 21 million animals are used for testing in the U.S. each year, they were not counting invertebrate animals like shrimp, fish, worms, and flies. Some people say invertebrates aren't really animals. They think that although invertebrates can **react** to stimuli (a shrimp, for example, will move away from an electric shock), they cannot feel pain. Invertebrates make up a much larger **proportion** of test animals than even rats and mice. They are not covered by the rules that help protect vertebrates like cats, rats, and chimps. Can we **justify** this unequal treatment? Many of us have a gut feeling that a rabbit is worth more than a fruit fly. We kill bugs, but when a pet dies, we cry. Can we **rely** on these feelings to help us make fair decisions about animal testing? Or should we develop an **alternative** system that treats all animals the same?

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ANIMAL TESTING: IS IT NECESSARY?

rely | react | alternative | justify | proportion

THINK SCIENTIFICALLY

The students in Mr. Seemy's class are arguing about the morality of using animals in medical research. "I'm really passionate about stopping animal testing," says Kyra. "I think about my dog, Jasper, and I think, 'What if it were him?' I know he can feel happy or sad, trusting or afraid. I can't stand to imagine him in a painful experiment."

"I can understand why you **react** so strongly to animal suffering," says Aliyah, "but I'm passionate about the value of medical research. My mom is diabetic, and she would probably be dead now if it weren't for past research on insulin using pancreases from dogs. I believe the benefit to my mom and millions of people like her **justifies** animal research. "

"I've read about the research you're talking about," says Kyra. "Those dog experiments led to the discovery of insulin almost a hundred years ago. But there are all kinds of **alternatives** to animal research these days—computer simulations and things like that. Scientists have even started working on what they call "organs-on-chips." They're not computer chips; they're little devices that use real, living human cells from various human organs. They can test drugs on lung cells or heart cells, and they can simulate real blood and air flow. It's a more lifelike situation than just working with cells in a test tube or something."

"That's great," says Aliyah. "But scientists still need to be able to test drugs and other treatments on whole living animals, or they won't be able to predict how a treatment might affect a whole living person. What if you use a lung-on-a-chip to prove that a new asthma medication is safe for lung cells, but you don't find out that the same medicine causes brain tumors? Studying the drug in rats before using it on people could save human lives."

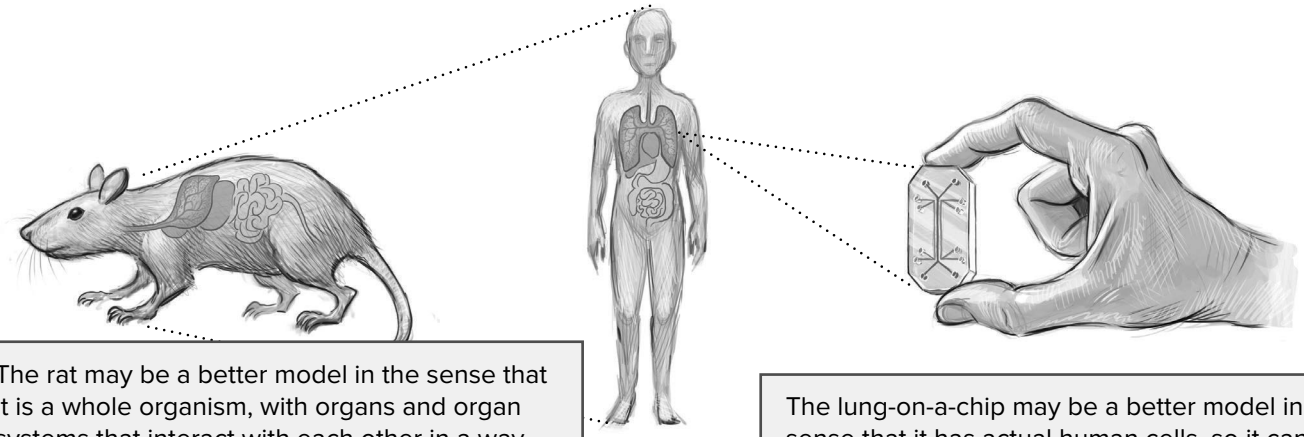
"You're both raising a really interesting issue about models," says Mr. Seemy. "When you test a medication on a rat or on one of these new organs-on-a-chip, you're using the rat or the chip as a model of a real human. The model represents the thing you really want to know about—the human—without putting the human at risk."

"It's hard to think of either a rat or a chip as a model of a person," says Anna. "Neither of them looks like a person."

"True, but a model in this sense doesn't have to look like the thing it represents," says Mr. Seemy. "Models can be things that just represent an aspect of how something works."

"I'd be happy to see the **proportion** of medical research that uses animal testing drop," says Aliyah. "But only if we can really **rely** on **alternative** models to be at least as good as animals at representing human biology."

Consider a live rat and a lung-on-a-chip (containing human lung cells) as possible models in an experiment on the effect of a medication on human lung tissue. In what ways do you think the rat is the better model (representation) in which to test new drugs? In what ways do you think the chip is the better model of a living human?



The rat may be a better model in the sense that it is a whole organism, with organs and organ systems that interact with each other in a way that's generally similar to the way a human body works.

The lung-on-a-chip may be a better model in the sense that it has actual human cells, so it can reveal human-specific results of exposure to chemicals that affect rats and humans differently.

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ANIMAL TESTING: IS IT NECESSARY?

rely | react | alternative | justify | proportion

DEBATE THE ISSUE

Pick one of these positions (or create your own).

A

❑ Animal testing is necessary and should be allowed.

OR

B

❑ Animal testing is not necessary and should never be allowed.

OR

C

❑ Animal testing should only be allowed for lifesaving medical breakthroughs.

OR

CREATE YOUR OWN

❑ _____

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Jot down a few notes on how to support your position during a discussion or debate.

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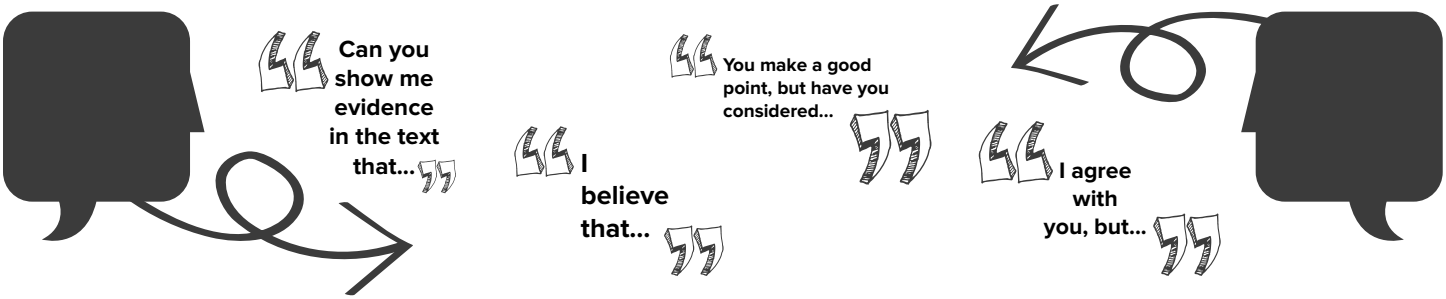

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ANIMAL TESTING: IS IT NECESSARY?

rely | react | alternative | justify | proportion

TAKE A STAND

Support your position with clear reasons and specific examples. Try to use relevant words from the Word Generation list in your response.

rely | react | alternative | justify | proportion

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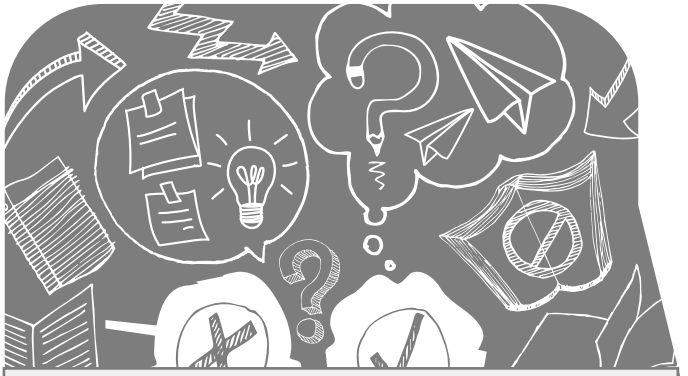
This week's issue:

CENSORSHIP: WHO SHOULD DECIDE WHAT YOUNG PEOPLE READ?



Questions for Classroom Discussion:

- Why do some people feel that young readers should not have access to books that cover tough issues?
- Should adults have the right to prevent young readers from having access to books they consider inappropriate?
- Why do some people feel that having access to books dealing with tough issues can be helpful for students, despite the risks?
- Why do librarians and teachers think they can promote positive attitudes toward reading by making banned books accessible to students?
- What are some examples of novels that integrate issues of racism or violence into their plots?
- How is book censorship a civil rights issue?

Each year, people try to keep certain books out of schools and libraries. They feel that students should not have **access** to literature about subjects they consider inappropriate for young readers. Many popular books have been challenged or banned in recent years. The list includes *The Hunger Games* by Suzanne Collins, *The Giver* by Lois Lowry, and *Harry Potter* by J.K. Rowling. *Captain Underpants* by Dave Pilkey is even on the list.

Some people think that youth should be protected from difficult issues, such as racism and violence. They also think that books can give kids bad ideas. Other people suggest that youth are facing tough issues in their lives already. If those issues are **integrated** into meaningful stories, young people might find books helpful for understanding their own lives. For example, when a novel incorporates a problem such as racism, it can help kids dealing with prejudice feel less alone. It might also help them see how their actions can affect other people.

Librarians and teachers try to **promote** positive attitudes toward reading. They like to see students fully engaged with relevant literature. Some librarians and teachers want censored books to be accessible to students because these books are often interesting to read. Many American citizens argue that book banning and other types of censorship violate their **civil** rights.

Should students have the freedom to read anything they choose **despite** the possible negative effects?

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CENSORSHIP: WHO SHOULD DECIDE WHAT YOUNG PEOPLE READ?

UNIT 1.07

access | civil | despite | integrate | promote

USE THE FOCUS WORDS *and alternate parts of speech

access *(noun)* ability to use; right to use

Sample Sentence: Although computers seem to be everywhere in the United States, many people in the world do not have **access** to a computer at home or at school.

Turn and Talk: How would your life be different if you did not have **access** to a computer?

***access** *(verb)* to be able to use or find

Sample Sentence: Students can **access** homework support and tutoring in the after-school program.

Turn and Talk: Are you able to **access** healthy food in your neighborhood? Explain.

civil *(adjective)* involving citizens or citizenship; polite

Sample Sentence: The **Civil** Rights Movement helped guarantee that all American citizens would be treated equally.

Turn and Talk: Can you name some **civil** rights?

despite *(preposition)* even with, in spite of

Sample Sentence: Andrea won the spelling bee **despite** the fact that she has a learning disability.

Turn and Talk: Why do people continue smoking **despite** all of the evidence that it can kill you?

integrate *(verb)* to make part of; to combine

Sample Sentence: During the Civil Rights Movement, schools were **integrated** so that children of all races could study together.

Turn and Talk: Should boys' and girls' sports teams be **integrated** so that everyone can compete together?

promote *(verb)* to encourage

Sample Sentence: The community tried to **promote** the use of bicycles by adding bike lanes to many streets.

Turn and Talk: Do you think that video games **promote** violence?

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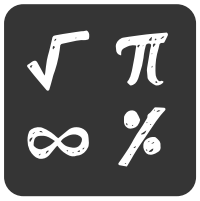
CENSORSHIP: WHO SHOULD DECIDE WHAT YOUNG PEOPLE READ?

UNIT 1.07



access | civil | despite | integrate | promote

DO THE MATH

The American **Civil** Liberties Union (ACLU) **promotes** individual rights and liberties. The ACLU believes that defending **civil** liberties is always important, **despite** the fact that some people strongly disagree in certain situations. In 1999, the ACLU sued the town of Wichita Falls, Texas for restricting **access** to two children's books. The books, *Daddy's Roommate* and *Heather has Two Mommies*, have gay and lesbian characters. Some citizens had signed a petition complaining about the books, so the books were moved to the adult section of the library.

At the time, the move was legal. The law in Wichita Falls said that if 300 people signed a petition, a children's book could be moved to the adult section. ACLU members said moving the book was just like hiding it. They argued that censoring books violated people's **civil** rights. All children's books, they said, should be **integrated** into the children's section of the library.

Option 1: The population of Wichita Falls is about 100,000. Which statement is true?

A. 300 people is less than 1% of the population
B. 300 people is about 3% of the population
C. 300 people is more than a third of the population
D. 300 people is about 5% of the population

Option 2: If 300 of 100,000 residents signed the petition against the two children's books, what is the probability that a resident chosen at random signed the petition?

3/1,000 or .003

Discussion Question: The **civil** code of Wichita Falls allowed a small percentage of the city's residents to control **access** to certain books. Some people said this was fair. They said that communities have the right to **promote** certain values, and that libraries should reflect these values. If a book offends people, it should be removed. Other people disagreed, saying that the library should **integrate** the views of all different groups, **despite** the fact that some groups might disagree with each other. Which view seems right to you?

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CENSORSHIP: WHO SHOULD DECIDE WHAT YOUNG PEOPLE READ?

access | civil | despite | integrate | promote

THINK SCIENTIFICALLY

"I heard that our principal, Ms. Jackson, is going to ban *Captain Underpants* from the school library," says Haley.

"Hold on a second," says Ms. Kahn. "Let me head off that rumor before it goes viral. Ms. Jackson and some of us teachers were talking about the American Library Association's annual list of books that people have tried to ban from libraries and schools, and she mentioned that the *Captain Underpants* series of graphic novels were at the top of the list two years in a row, in 2012 and 2013. But as far as I know, neither Ms. Jackson nor anyone else is talking about banning any books at our school."

"How did restricting kids' **access** to *Captain Underpants* reach the top of anybody's list?" says Max. "There must be a lot of worse books that deserve to be banned more."

"That's not even the point," says Haley. "Nobody should be banning anything. People on one side of an issue might want to ban books that support the other side, but that's not how we should deal with disagreements. Better to just take censorship off the table **despite** our not liking a lot of what gets written. We should talk with each other in a **civil** way about the topics we disagree about."

"Well, I disagree with that," says Marian. "I don't think we should tolerate books and magazines that **promote** disrespect."

Jamal joined in the conversation. "I write for the student paper, and we've had the issue of censorship come up there. Every once in a while, a parent says the school shouldn't let students say certain things. Our faculty sponsor, Mr. Lee, always talks with us about considering the feelings and ideas of the critics. He encourages us to **integrate** opposing views into our arguments, but he defends our right to express ourselves and take on any topic."

"There are obviously a lot of different dimensions to the issue of censorship," says Ms. Kahn. "I wonder if anyone has done any research on young people's attitudes towards censorship in schools. Maybe some of you could see what you can find out about that."

Haley, Max, Marian, and Jamal find a Gallup Youth Survey from 2005 and share its results with the class.

For this survey, 549 teenagers age 13–17 were asked whether or not they thought it was okay for public schools to impose each of the three following restrictions:

Is it okay for public schools to...	Yes	No
restrict bad language in student writing assignments?	75%	25%
limit what students are allowed to write about in school newspapers?	45%	55%
ban books and periodicals that school officials consider offensive?	44%	56%

This survey had a margin of error of plus or minus 5%. Given that margin of error, is it possible to say which of the three restrictions was most acceptable to students? Is it possible to say which was least acceptable to students?

> Even with the margin of error, we can conclude that students found it most acceptable for public schools to "restrict bad language in student writing assignments." However, the disapproval ratings of the other two restrictions were too close (1% difference) to say which was least acceptable to students, due to the 5% margin of error.

Take the survey as a class. Are your class' results similar to those of the original Gallup Youth Survey?

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CENSORSHIP: WHO SHOULD DECIDE WHAT YOUNG PEOPLE READ?

UNIT 1.07

access | civil | despite | integrate | promote

DEBATE THE ISSUE

Pick one of these positions (or create your own).

A

❑ Students should be free to read anything they want.

OR

B

❑ Adults should select appropriate books for students.

OR

CREATE YOUR OWN

❑ _____

_____

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Jot down a few notes on how to support your position during a discussion or debate.

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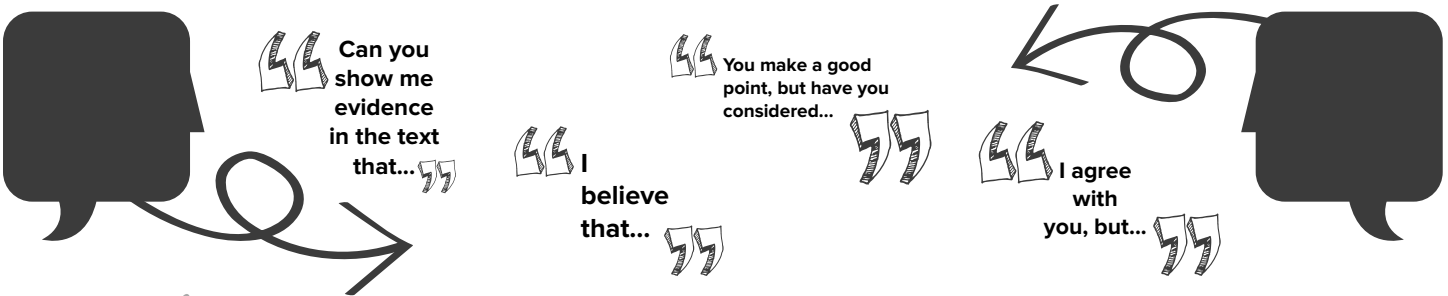
Be a strong participant by using phrases like these:



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CENSORSHIP: WHO SHOULD DECIDE WHAT YOUNG PEOPLE READ?

access | civil | despite | integrate | promote

TAKE A STAND

Support your position with clear reasons and specific examples. Try to use relevant words from the Word Generation list in your response.

access | civil | despite | integrate | promote

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This week's issue:

CLIMATE CHANGE: WHO SHOULD PAY FOR THE CONSEQUENCES?

Questions for Classroom Discussion:

- What do experts believe led to Hurricane Sandy's strong power?
- What do scientists believe might happen in the U.S. as a result of rising sea levels?
- Should people relocate to avoid the next big storm?
- Should the government get involved to help rebuild communities after the next big storm?

In October 2012, Hurricane Sandy swept through the Caribbean and North America, killing 286 people and causing over $68 billion in damages. The storm brought flooding and strong winds. In New York and New Jersey alone, more than 40,000 people were displaced as the storm destroyed homes and businesses.

Although hurricanes are common, Hurricane Sandy was more destructive than most. Experts **attribute** Sandy's unusual strength to the effects of climate change, which include higher average temperatures and rising sea levels. Scientists **project** that storms like Sandy will become more frequent as Earth gets warmer. And powerful storms aren't the only consequence of climate change. **Statistics** about rising sea levels suggest that parts of many coastal U.S. cities will be under water by 2100. The cities of Boston, New York, Baltimore, Philadelphia, and Miami are at high risk.

The Rockaways is an area of New York that was hit particularly hard by Hurricane Sandy. People agreed that rebuilding the Rockaways—a popular recreation area that many people call home—was in everyone's best **interest**. But that cost a lot! New York City spent over $140 million to clean up Rockaway beaches in the two years after the storm, and that was only a start. The price tag for adding sand to the beaches and rebuilding the boardwalk is even higher. Government programs are also paying for residents to rebuild their homes. What if the next big storm causes as much damage as Sandy?

Other communities have chosen to **relocate** rather than rebuild. Newtok, Alaska is projected to be under water by 2017 because of rising sea levels. Residents of Newtok are relocating to Mertarvik, a town that is 9 miles away. The relocation could cost over $100 million, but then the Newtok residents will be safe from further disruption.

Scientists agree that climate change is a reality. Large cities like New York and Miami already have so much infrastructure—buildings, roads, power plants—that the cost of relocating would be unrealistic. These cities are building roof gardens to absorb heat and elevating waterfront areas to reduce the impact of storm flooding.

But what about smaller communities? Should the government spend limited dollars on rebuilding these communities to withstand the next big storm? Or should these communities be responsible for rebuilding themselves, since they are deciding to stay in the path of storms?

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CLIMATE CHANGE: WHO SHOULD PAY FOR THE CONSEQUENCES?

attribute | interest | project | relocate | statistics

USE THE FOCUS WORDS *and alternate parts of speech

attribute *(verb)* to attach; to associate

Sample Sentence: George **attributes** his basketball skills to the hours he spends playing HORSE with his older brother.

Turn and Talk: Think of something that you are good at. To what or to whom do you **attribute** your success? For example: I **attribute** my success at playing poker to lessons from my great-uncle Jack.

***attribute** *(noun)* a good or useful quality

Sample Sentence: One **attribute** of a successful swimmer is the discipline to practice every day.

Turn and Talk: What is a typical **attribute** of a good student?

(in someone's) interest *(idiom)* helpful to someone; for the benefit of someone

Sample Sentence: Freedom of speech is in the **interest** of all citizens.

Turn and Talk: If you are having a conflict with someone you care about, what action might be in your best **interest**?

***interest** *(verb)* to make someone curious; to attract

Sample Sentence: The stars **interested** Juliet, so it was no surprise that she wished to attend Space Camp.

Turn and Talk: Why does your dream career **interest** you?

relocate *(verb)* to move to a new place

Sample Sentence: After a tornado, sometimes people choose to **relocate** rather than rebuild.

Turn and Talk: If you were given the opportunity to **relocate** anywhere in the world, where would you move and why?

project *(verb)* to predict; to estimate a future amount or direction

Sample Sentence: Scientists **project** that temperatures will keep rising if we continue to ignore the impact of our activities.

Turn and Talk: Based on your current interests, what do you **project** you will be doing when you're 20 years old?

***project** *(noun)* a task that requires a lot of time and effort

Sample Sentence: Last year the sixth grade art class **project** was to paint a new mural on the schoolyard's wall.

Turn and Talk: What **project** around your school would you like your class to be involved in?

statistics *(noun)* numerical information

Sample Sentence: According to popular **statistics**, the average person consumes four sodas a day.

Turn and Talk: Do you think that **statistics** about obesity make people more likely to watch what they eat?

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CLIMATE CHANGE: WHO SHOULD PAY FOR THE CONSEQUENCES?

attribute | interest | project | relocate | statistics

DO THE MATH

Many people **attribute** hurricanes and heat waves to climate change. But those are not the only effects. Climate change can cause more precipitation than usual in some places. This extra rain or snow can lead to flooding and the need to strengthen buildings and shorelines. Other areas will receive far less precipitation than normal. Areas experiencing drought, the prolonged absence of water, may have famines (lack of food) that force people to **relocate** to other areas. Experts **project** that severe droughts will get worse in the coming years, making water conservation more than just a national **interest**, but an international priority.

Option 1: About 30% of home water usage can be **attributed** to toilet flushes. Toilets installed before 1992 use about 5 gallons of water per flush. Newer toilets use about 1.5 gallons per flush. If people flush the toilet an average of 5 times a day, about how many gallons of water could one person save in one year by using a newer toilet?

A. 800
B. 2,700
C. 6,400
D. 9,100

Option 2: Statistics show that it takes 1,000 gallons of water to feed one American for one day, which is much higher than the global average. The high water use can be largely **attributed** to meat production. Consider this fact: Between feeding the growing cow and processing the meat, about 630 gallons of water go into one hamburger.

Develop a quantitative question that **interests** you about your classmates' meat consumption. For example, your question could be, "How many hamburgers do you eat per week?" Record your classmates' responses on a line plot and describe the range, median, and mean of your data set.

Answers will vary.

Discussion Question: Many **attribute** the severity of California's long-term drought to climate change. Californians have taken steps to reduce their water waste, like fixing leaks at home and using brooms instead of water hoses to clean sidewalks. Californians may be decreasing water consumption, but **statistics** show that the average American uses about 100 gallons of water per day. This is twice the amount an average European uses, and more than 50 times the amount residents of sub-Saharan Africa use. Since scientists **project** more frequent and severe droughts, what are some strategies that communities and governments could adopt to reduce water consumption in the United States?

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CLIMATE CHANGE: WHO SHOULD PAY FOR THE CONSEQUENCES?

attribute | interest | project | relocate | statistics

THINK SCIENTIFICALLY

"The United States needs to do more about reducing carbon dioxide emissions," says Kyra. "I read we're responsible for more carbon dioxide emissions than any other country on Earth except China. I think we should be a leader in the fight against climate change."

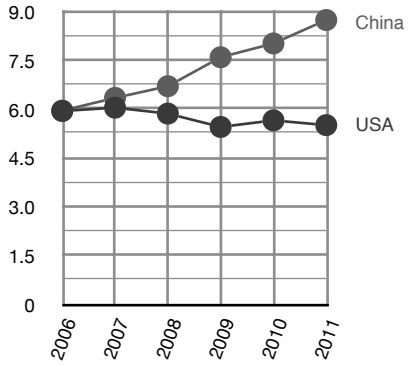
"Well," says Anthony, "if China is polluting more, maybe they should change first. I heard that their greenhouse gas emissions are **projected** to rise much faster than ours."

"Everybody needs to do better," says Aliyah. "There's no use in everyone sitting around **attributing** responsibility to someone else. The whole world needs to help."

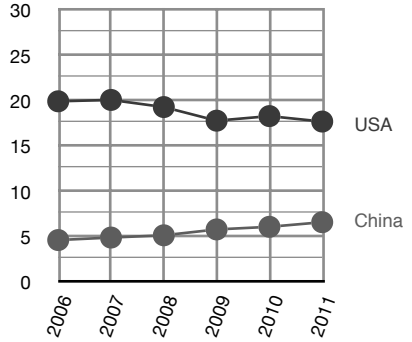
"Figuring out who produces how much carbon dioxide can be tricky," says Mr. Seemy. "Maybe some of you could find some **statistics** that would help us compare the roles of the United States and China."

Kyra, Anthony, and Aliyah found some data on the website of the U.S. Energy Information Administration. They focused on "carbon dioxide emissions from the consumption of energy" for China and the United States. They looked at the total emissions for each country, and also at the "per capita" (per person) emissions for each country, and made the following graphs.

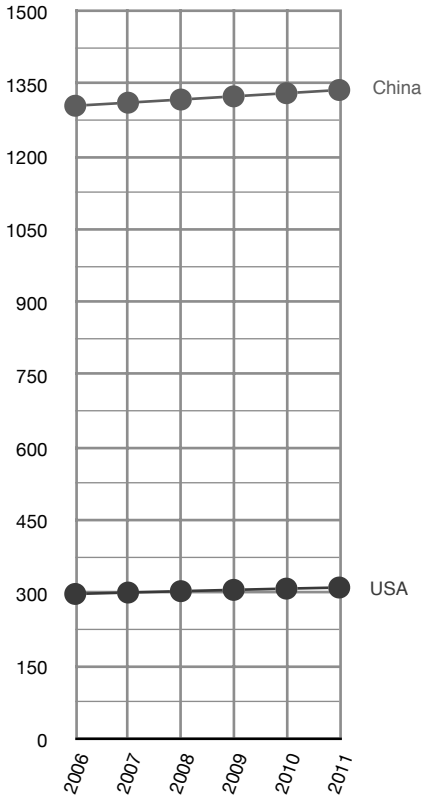
Total emissions (billions of metric tons)



Per capita emissions (metric tons)



Population (millions)



Data Source: U.S. Energy Information Administration, http://www.eia.gov/cfapps/ipdbproject/IEDIndex3.cfm

Assuming the trends in these graphs continue into the future, what would be your hypothesis about the future impact of China and the United States on global carbon dioxide emissions?

> Assuming the trends continue, China's contribution to global carbon dioxide emissions will continue to rise in the future, while the United States' will stay relatively the same or slightly decline.

What is the clearest way to explain the relationship between the three graphs? Practice explaining the graphs to a partner as if you're a teacher and he or she is a student.

> An average American causes greater (although decreasing) CO2 emissions. China's larger population and per capita emissions are rising faster, and its total emissions now top ours.

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CLIMATE CHANGE: WHO SHOULD PAY FOR THE CONSEQUENCES?

UNIT 1.08

attribute | interest | project | relocate | statistics

DEBATE THE ISSUE

In the last ten years, the community of Seaside has been hit by two hurricanes that caused millions of dollars in damage. Both times, the government paid to help rebuild Seaside. Scientists **project** a high likelihood of future hurricanes as the effects of climate change take their toll. Other residents in the state protest the repeated use of public funds to rebuild Seaside. They argue that Seaside residents have made a free choice to stay in the path of destruction, so they should pay for future damages. But Seaside residents point out that their beaches are a source of recreation for people from all over the state, so it is in everyone's **interest** to use public funds to rebuild after the next storm. *Who should pay for the consequences of climate change?*

Pick one of these positions (or create your own).

A

❑ Seaside should be responsible for rebuilding itself, since residents choose to live in the path of destruction.

OR

B

❑ State public funds should be used to rebuild Seaside after the next hurricane.

OR

CREATE YOUR OWN

❑ _____

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Jot down a few notes on how to support your position during a discussion or debate.

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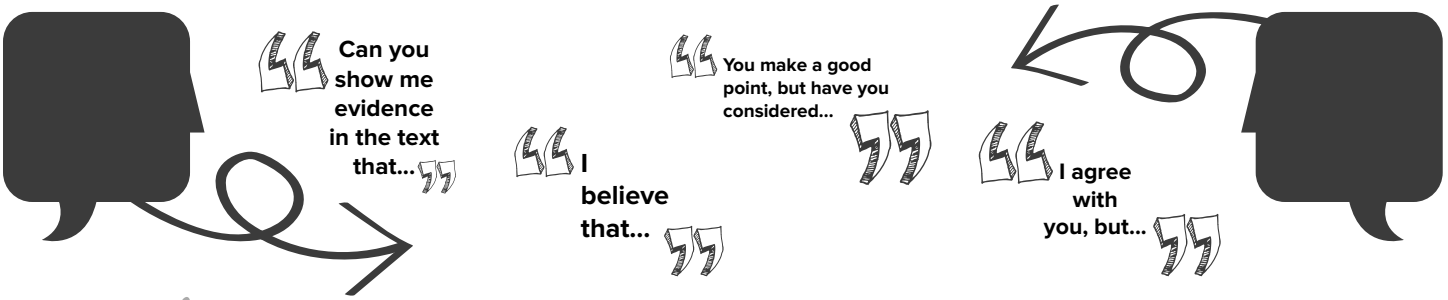
Be a strong participant by using phrases like these:



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CLIMATE CHANGE: WHO SHOULD PAY FOR THE CONSEQUENCES?

TAKE A STAND

Support your position with clear reasons and specific examples. Try to use relevant words from the Word Generation list in your response.

attribute | interest | project | relocate | statistics

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This week's issue:

SCHOOL DRESS CODES: NOT STRICT ENOUGH?

Questions for Classroom Discussion:

- Why do some school officials want to reduce skin exposure and ban offensive language on clothing?
- Why might some parents want a transition to stricter dress code policies such as requiring school uniforms?
- Why don't some teenagers want the school to monitor what they wear?
- Why do some students think a strict dress code is a good idea?
- Does having a strict dress code promote a positive school culture?

Parents and their teenage children have always fought about the way young people dress. Some schools are taking on the battle by making rules about what students may wear. Many school officials want to reduce skin **exposure** and ban t-shirts with offensive language. They argue that this type of clothing can be distracting to other students. Some schools want to make even greater **adjustments** to their dress codes by requiring school uniforms.

Many parents are in favor of a **transition** to stricter dress code policies. They believe that uniforms contribute to a more structured classroom environment and help students focus on their schoolwork instead of worrying about how they look. These parents think that requiring uniforms reduces the pressure on students to look like their peers. They point out that students who can't afford expensive clothes often feel left out when they can't keep up with the latest trends. Some students who have been teased and criticized for wearing the "wrong thing" agree that stricter dress codes are a good idea.

Many teenagers think it's not the school's business to **monitor** what they wear. They don't want the dress code to be **modified** because they like to express themselves through their clothing choices. For example, some students like to wear shirts that advertise their favorite musicians or sports teams, and others choose distinctive outfits to show their individual fashion sense. Young people sometimes dress in a certain way because it is required by their religion. They argue that schools should not be able to censor their clothing because they have the right to religious freedom.

Some also believe that it is important to be comfortable in order to stay relaxed and focus on learning. Some people say that dress codes tend to target girls by saying that clothes like skinny jeans and leggings are too distracting to boys. They argue that schools should focus on fixing bad behavior instead of treating outfits as the problem.

What's your opinion? Should your school have a stricter dress code? How could a dress code have an impact on a school's culture?

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SCHOOL DRESS CODES: NOT STRICT ENOUGH?

adjustment | exposure | modify | monitor | transition

USE THE FOCUS WORDS *and alternate parts of speech

adjustment *(noun)* small change

Sample Sentence: I made an **adjustment** to my eating habits by replacing soda with water, and now I have more energy.

Turn and Talk: What **adjustments** can you make to have healthier eating habits?

exposure *(noun)* display; attention; experience with something

Sample Sentence: Many school officials want to reduce skin **exposure**.

Turn and Talk: Where can you go to get **exposure** to art from around the world?

modify *(verb)* to make changes to

Sample Sentence: Siya decided to **modify** the look of her room with some new paint and a small rug.

Turn and Talk: How would you like to **modify** the content of your social studies curriculum?

monitor *(verb)* to check; to keep track of

Sample Sentence: Jabari used his phone to **monitor** how long it takes him to walk to school.

Turn and Talk: Is it important for parents to **monitor** their children's computer use? Why or why not?

transition *(noun)* change process

Sample Sentence: The **transition** from living with my mother to living with my father has been difficult, but it's getting easier each day.

Turn and Talk: Was the **transition** from fifth to sixth grade easy or difficult? Share a few details to support your opinion.

***transition** *(verb)* to adjust to; to change or move from one condition to another

Sample Sentence: Our school is **transitioning** from textbooks to iPads.

Turn and Talk: Why do you think it's so hard for soldiers to **transition** from military to civilian life?

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SCHOOL DRESS CODES: NOT STRICT ENOUGH?

adjustment | exposure | modify | monitor | transition

DO THE MATH

In the early 1990s, Long Beach Unified School District in California was in trouble. Students in its schools were violent. District-wide test scores were low. School officials thought about different ways to **modify** the schools. They wondered what kinds of **adjustments** would work best to fix their district. In 1994 they began a **transition** to school uniforms. Test scores improved. Violence decreased. Within a few years, school crime had dropped by 80%.

The uniform policy at Long Beach Unified got a lot of media **exposure**. President Bill Clinton praised school uniforms in his 1996 State of the Union Address. Groups that **monitor** education also took notice. The Broad Foundation, for example, awarded the school $2.14 million in prizes.

Option 1: In Long Beach, school crime fell by 80%. Which of the following means the same thing?

A. School crime fell by four-fifths.
B. School crime fell by three-quarters.
C. School crime fell by two-thirds.
D. School crime fell by half.

Option 2: Each year, the average American school spends approximately $10,000 per student. How many students could the Broad Foundation's $2.14 million in prizes fund for one year? (Hint: To solve this problem quickly, use exponents.)

$(2.14 \times 10^6) / (1 \times 10^4) = 2.14 \times 10^2$, or 214 students

Discussion Question: The media **exposure** of school uniforms in Long Beach sparked a debate. Some researchers pointed out that requiring uniforms was not the only **adjustment** made by the district. The uniforms were just one part of a larger **transition**. When the district **modified** the dress code, it also began to improve school security and closely **monitor** school attendance, among other changes. Did the uniforms fix the schools? How could we find out?

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SCHOOL DRESS CODES: NOT STRICT ENOUGH?

adjustment | exposure | modify | monitor | transition

THINK SCIENTIFICALLY

"I heard that our principal, Ms. Jackson, was meeting with some parents who want us all to **transition** from the current school dress code to wearing school uniforms," says Sumiko.

"Ew!" says Alyssa. "I hate that idea. We already have a dress code to keep skin **exposure** to a reasonable level—no shorts or skirts higher than our fingertips, no bare midriffs, that kind of thing. And we're not allowed to have swear words printed on our clothes. I'm okay with that, but we should still have some right to express ourselves in the way we dress."

"I don't know," says Ethan. "Deciding what to wear and trying to figure out what's in and what's out is a pain. Having to wear uniforms would take some **adjustment**, but it would make life simpler in the long run."

"I don't want my school to **monitor** every aspect of my life," says Mario. "What I wear should be up to me. I definitely don't want uniforms. And as for the dress code, there are bound to be cases where it's unclear whether a certain outfit fits the rules or not. It's not like a dress code can be as clear and objective as things are supposed to be in science, for example."

"Hmm. What do you mean?" asks Ms. Kahn. "Why don't you think a dress code can be objective?"

"Well, the rules are always going to be open to interpretation," says Mario. "Students might interpret them differently from the way the administrators who wrote the rules meant them."

"Can you give some examples?" says Ms. Kahn. "The class can think about how to **modify** the rules to be clearer."

Mario made up some examples of rules and the ways people might misinterpret them (by accident or on purpose). Below are three of his examples.

Existing Rule	Rule Violation	Intended Solution	Unintended Solution	Write a revised rule that makes the intended solution clearer
Dresses must not have spaghetti straps.				Example: Dresses must have sleeves or straps that are at least two inches wide.
The bottom hem of skirts or shorts must be below the fingertips.				Example: The bottom hem of skirts or shorts must be below the fingertips, and there may be no bare midriffs.
Each boy must wear a tie.				Example: Each boy must wear a tie in the conventional way around his neck.

*If you could **modify** your school's dress code or uniform, what **adjustments** would you make?*

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SCHOOL DRESS CODES: NOT STRICT ENOUGH?

adjustment | exposure | modify | monitor | transition

DEBATE THE ISSUE

Pick one of these positions (or create your own).

A

❑ Schools should require students to wear uniforms.

OR

B

❑ Schools should have a dress code.

OR

C

❑ Schools should not **monitor** what students wear.

OR

CREATE YOUR OWN

❑ _____

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Jot down a few notes on how to support your position during a discussion or debate.

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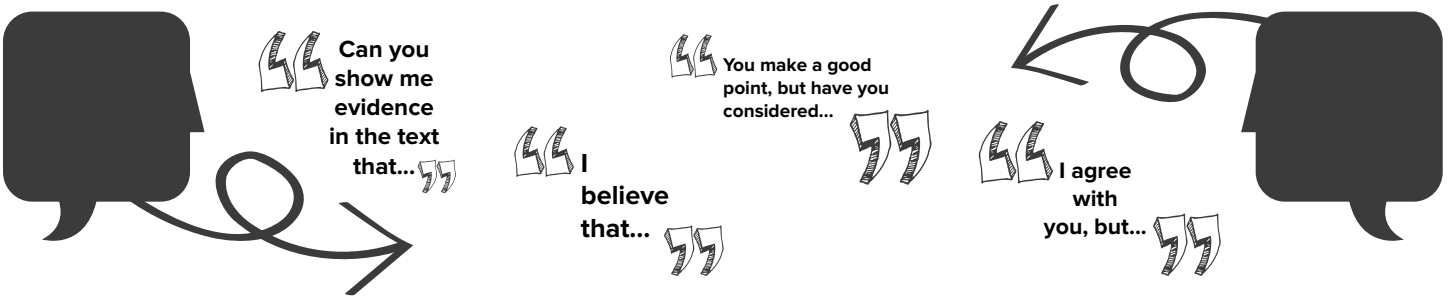

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SCHOOL DRESS CODES: NOT STRICT ENOUGH?

adjustment | exposure | modify | monitor | transition

TAKE A STAND

Support your position with clear reasons and specific examples. Try to use relevant words from the Word Generation list in your response.

adjustment | exposure | modify | monitor | transition

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This week's issue:

WHO IS RESPONSIBLE FOR DOPING IN PROFESSIONAL TEAM SPORTS?

Why do so many well-known athletes use performance-enhancing drugs today? Baseball players like Manuel "Manny" Ramírez, Roger Clemens, and Alex Rodriguez have all been accused of using steroids or banned drugs ("doping") to enhance their athletic performance. Ramírez retired in 2011 in order to avoid a 100-game suspension from the Tampa Bay Devil Rays after he tested positive for performance-enhancing drugs for the third time in his career.

Alex Rodriguez, a slugger for the New York Yankees, was suspended for the 2014 baseball season for using prohibited performance-enhancing drugs. Although Rodriguez denied the use of chemical **compounds**, he has been disgraced and his record remains under scrutiny.

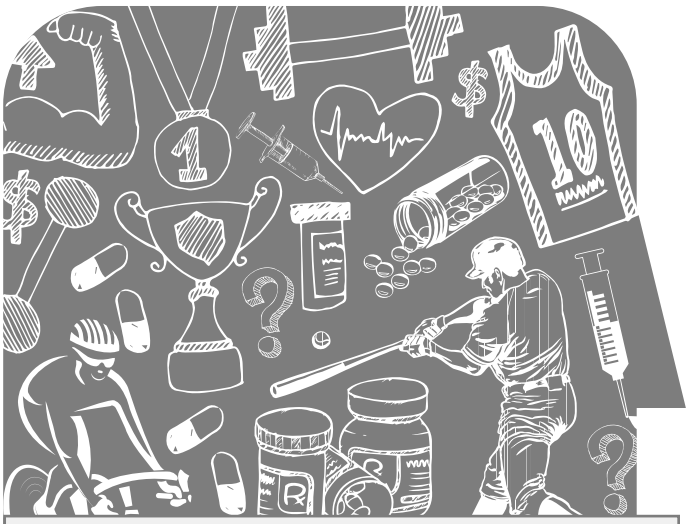
Since steroids have been declared illegal and are now easily detectable, athletes have started **substituting** new ways of cheating that are harder to detect. For example, cyclists and other endurance athletes give themselves blood transfusions to **alter** the oxygenation of their blood.

In 2013, the cyclist Lance Armstrong finally admitted to doping to win his numerous titles and trophies, which had come with huge earnings and endorsement deals. Armstrong won the Tour de France seven times, but after evidence surfaced of his use of illicit compounds, the United States Anti-Doping Agency stripped him of his titles in 2012. The U.S. Postal Service is even suing Armstrong for fraud, because they paid millions of dollars to sponsor him and his team.

Some critics argue that athletes should not be blamed for engaging in doping. Sports writers point out that athletes are so pressured to continuously perform and outdo competitors that steroid use is very tempting. If fans and sponsors didn't push for more power hitting, faster times, and bigger championships, maybe athletes wouldn't be so inclined to alter their bodies with potentially dangerous drugs.

Many athletes are **conflicted** about using these chemical compounds, which take a toll on their mental and physical health. Those using steroids are aware of the negative consequences – men's breasts grow and their testicles shrink, they may get acne, and many users experience delusions or feelings of aggression, known as "roid rage."

Some **fundamental** questions that perhaps should be asked are: Who is responsible for making illegal substances part of team sports? Would athletes alter their blood and body chemistry if they didn't feel so much pressure to outperform their peers? Should fans and sponsors bear some of the responsibility?



Questions for Classroom Discussion:

- Why do some athletes take steroids? Why do some of them now substitute new ways of cheating?
- Should we focus on what an athlete achieves, or on how he or she achieves it? Is good sportsmanship a fundamental part of athletic success?
- If an athlete is found guilty of steroid use, should his or her record be thrown out, like what happened to cyclist Lance Armstrong?
- Who is responsible for illegal substances being part of team sports?

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WHO IS RESPONSIBLE FOR DOPING IN PROFESSIONAL TEAM SPORTS?

fundamental | alter | conflicted | substitute | compound

USE THE FOCUS WORDS *and alternate parts of speech

fundamental *(adjective)* central; essential; basic

Sample Sentence: A **fundamental** part of being able to read well is knowing a lot of vocabulary words.

Turn and Talk: Sara says that reading is a **fundamental** skill. Give some evidence to support her claim.

alter *(verb)* to change

Sample Sentence: Taking steroids can **alter** the way your brain works. People who take steroids can become violent toward others for no reason.

Turn and Talk: Name a few ways you would like to **alter** the room where you sleep.

conflicted *(adjective)* undecided; having feelings that clash

Sample Sentence: Mussa was **conflicted** about whether to save his birthday money for a trip to Washington, D.C., or spend it on a new Xbox game.

Turn and Talk: Why might someone be **conflicted** about going to college?

substitute *(verb)* to replace

Sample Sentence: Even though Terry mistakenly **substituted** oil for butter in the brownie recipe, the brownies still turned out fine.

Turn and Talk: What ingredients could you **substitute** for chocolate chips in a pancake recipe?

***substitute** *(noun)* an object or person used in place of something or someone else, a replacement

Sample Sentence: There is no **substitute** for a good night's sleep in preparing for a test.

Turn and Talk: With your partner, think of some healthy **substitutes** for sugary sodas.

compound *(noun)* mixture

Sample Sentence: Pharmacists often combine different chemicals to make **compounds** for medicine.

Turn and Talk: What is the difference between an element and a chemical **compound**?

***compound** *(verb)* to complicate by adding to

Sample Sentence: Don't **compound** the problem of forgetting your homework by being rude to your teacher.

Turn and Talk: Can telling the truth ever **compound** a problem?

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WHO IS RESPONSIBLE FOR DOPING IN PROFESSIONAL TEAM SPORTS?

fundamental | alter | conflicted | substitute | compound

DO THE MATH

Barry Bonds holds Major League Baseball's record for career home runs. Many people feel **conflicted** about this fact. On one hand, Bonds is a great athlete and the record is a historic accomplishment. On the other hand, Bonds has been accused of using chemical **compounds** to illegally **alter** his body. This kind of chemical abuse goes against **fundamental** sports ideals, like sportsmanship and fair play. Before Bonds, Hank Aaron held the home run record. He was a role model to other athletes and was one of the best players of all time. Some people think Barry Bonds is a poor **substitute** for Hank Aaron.

Here are the all-time top five career home-run hitters as of 2014:	
Barry Bonds	762
Hank Aaron	755
Babe Ruth	714
Alex Rodriguez	673
Willie Mays	660

Option 1: What percentage more home runs did Barry Bonds hit than Hank Aaron?

A. 5% more
B. 2% more
C. 12% more
D. less than 1% more

Option 2: A physicist at Tufts University estimated that steroids could help a person hit 50% more home runs. Let's assume he is right. If a player hit 762 home runs on steroids, how many home runs would he have hit without the 50% increase that steroids provide? (For example, we're assuming a person who hit 15 home runs on steroids would have hit just 10 home runs without steroids. Ten, increased by 50%, becomes 15.)

508 home runs

Discussion Question: Steroids **alter** the body in **fundamental** ways, such as increasing muscle mass. Are they responsible for baseball's recent record-breaking performances? The list of great players caught up in the conflict over steroids is growing. Batting greats Jose Canseco and Mark McGwire have both admitted to using illegal **compounds**. Should Major League Baseball try to **substitute** clean players for the ones who built their bulk with the help of steroids? Or should we accept that steroids were part of this era, and focus on the future?

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WHO IS RESPONSIBLE FOR DOPING IN PROFESSIONAL TEAM SPORTS?

fundamental | alter | conflicted | substitute | compound

THINK SCIENTIFICALLY

"It seems like there is always some conflict over new performance-enhancing drugs in sports," says Michael. "If you stop players from using one chemical **compound**, they just **substitute** another. Maybe it would be simpler if everyone just decided players can use whatever chemicals they want."

"No way!" says Chris. "That would change the whole idea of athletic competition in a **fundamental** way. Using drugs is cheating. And if we stopped thinking of it as cheating, it would put pressure on all athletes to keep up by using drugs that might have unsafe side effects."

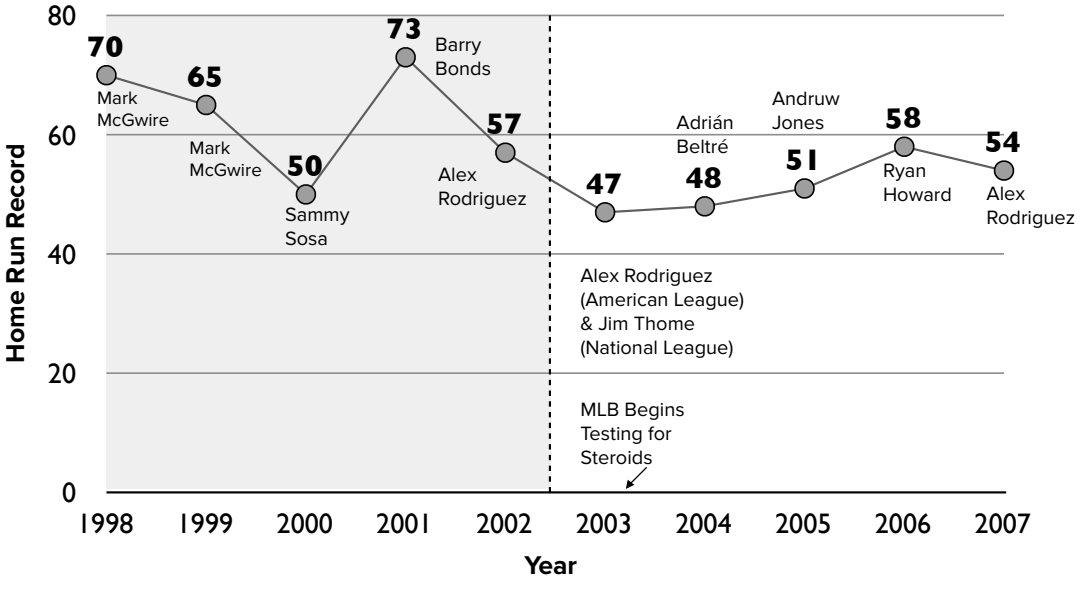
"I don't know," says Michael. "Do you really think drugs like steroids make a big difference in baseball, for example? I mean, just having bigger muscles doesn't mean you're going to be coordinated enough to hit better."

"Steroids might not **alter** your coordination," says Kyra, "but strength obviously plays a role in baseball. If two batters are equally coordinated, the stronger one should get more home runs."

"Can you prove that?" asks Michael. "I mean, as long as steroids aren't allowed, players try to keep any drug use secret. That makes it hard to compare batters with steroids to batters without steroids."

"That's an interesting problem," says Ms. Kahn. "Can you think of a way to find some data that might be relevant?"

Michael, Chris, and Kyra did some research and learned that Major League Baseball started testing players for steroid use in 2003. They figured that with testing, illegal steroid use might have dropped abruptly in 2003. They decided to compare the average yearly home run records in the five years before testing to the average yearly home run records in the five years after testing began.



What was the average annual home run record in the five years before steroid testing started?

Average for 1998-2002: 63 home runs

What was the average annual home run record the first five years after steroid testing started?

Average for 2003-2007: 51.6 home runs

What do you think these data suggest about the effect of steroids on batting? Explain, and make sure you state your evidence.

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WHO IS RESPONSIBLE FOR DOPING IN PROFESSIONAL TEAM SPORTS?

fundamental | alter | conflicted | substitute | compound

DEBATE THE ISSUE

Pick one of these positions (or create your own).

A

❑ Athletes are responsible for their own choices about using performance-enhancing drugs.

OR

B

❑ Teams and fans place too much pressure on athletes, which leads them to make fundamentally bad decisions about using performance-enhancing drugs.

OR

CREATE YOUR OWN

❑ _____

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Jot down a few notes on how to support your position during a discussion or debate.

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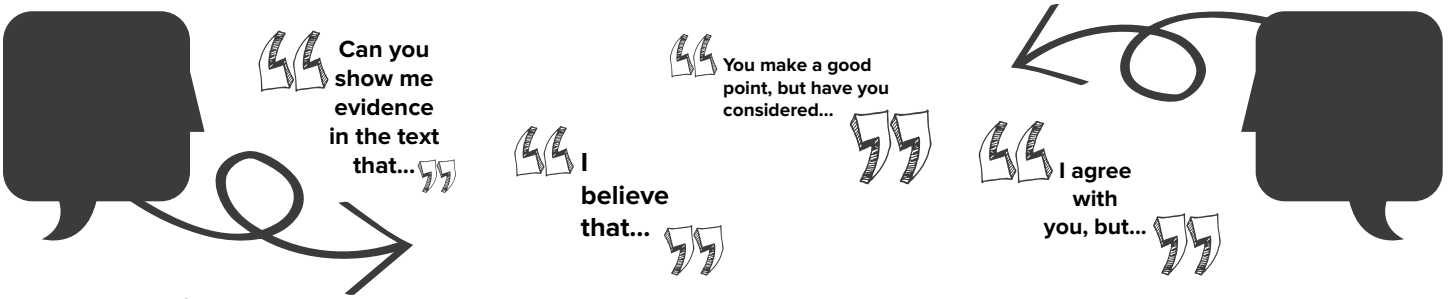
Be a strong participant by using phrases like these:



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WHO IS RESPONSIBLE FOR DOPING IN PROFESSIONAL TEAM SPORTS?

fundamental | alter | conflicted | substitute | compound

TAKE A STAND

Support your position with clear reasons and specific examples. Try to use relevant words from the Word Generation list in your response.

fundamental | alter | conflicted | substitute | compound

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diversity | enhance | migration | presume | reveal

This week's issue:

MUMMIES: WHO OWNS THE DEAD?

Mummies are very old dead human bodies that have been preserved with flesh still on their bones. Some cultures have a tradition of making mummies when people die. For example, ancient Egyptians preserved the bodies of dead kings and queens because they believed this would ensure a good afterlife.

In recent years, mummies that were created naturally have been discovered all over the world. One found in the Alps appears to have been accidentally frozen in a glacier. He is known as the Iceman and is **presumed** by scientists to be over 5,000 years old!

There is a **diversity** of perspectives about what to do with mummies when they are discovered. Should they be removed and examined, or should they be left where they are? Many people believe that removing a mummy from its burial place dishonors the dead. They argue that mummies preserved by humans were honored by their culture for religious or other reasons. We should respect these rituals instead of damaging the burial ground and removing the dead. Some people argue that even mummies that were created naturally, like the Iceman, should not be disturbed after death out of respect.

However, other people say it would be irresponsible to give up the chance to learn from mummies. We can discover a lot about human history by studying these ancient human bodies. They can **reveal** clues about what people ate, the tools they made, what they wore, and how they lived and died. They can also help to **enhance** archaeologists' understanding of human **migration** patterns. For example, scientific tests have revealed information about where the Iceman might have traveled in his lifetime.

Even among people who agree that we should remove and study mummies, there is a range of opinions about where the bodies should be taken. Some think that each mummy belongs to the country where it was first identified. They believe that researchers in its home country have the right to take ownership of the mummy.

Others believe that each mummy should go to the museum or university best equipped to study and protect it, even if it will need to be transported to a different country. They argue that the home country will not always have the ability to properly remove, transport, study, and store the mummy. If it isn't handled carefully, a mummy will deteriorate and will no longer be useful for scientific knowledge at all.

What do you think?

Questions for Classroom Discussion:

- What is a mummy?
- Why did the ancient Egyptians make mummies when people died?
- What can we learn from studying mummies?
- Why do some people believe mummies should be left where they are found?
- What should be done with mummies when they are found?

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MUMMIES: WHO OWNS THE DEAD?

UNIT 1.11

diversity | enhance | migration | presume | reveal

USE THE FOCUS WORDS

diversity *(noun)* variety; range

Sample Sentence: The school newspaper reporters were looking for a **diversity** of opinions, so they made sure to ask boys and girls from all grade levels.

Turn and Talk: What is a topic among your friends for which there is a **diversity** of beliefs?

enhance *(verb)* to improve

Sample Sentence: Heather joined the school dance troupe to **enhance** her dance skills.

Turn and Talk: Can you think of something that you could do to **enhance** the appearance of your school?

migration *(noun)* movement from one place to another

Sample Sentence: During the Great **Migration**, which took place from 1910 to 1970, over six million African Americans moved from the rural South to Northern, Midwestern, and Western cities.

Turn and Talk: What are some animals that have a yearly **migration**? Bonus points if you can say where they start and where they end up.

presume *(verb)* to suppose; to guess; to assume

Sample Sentence: The suspect was **presumed** guilty even before the stolen watch was found in his pocket.

Turn and Talk: What do you **presume** to be the reason why students don't go to school during the summer?

reveal *(verb)* to uncover; to show; to expose

Sample Sentence: Magicians rarely **reveal** their secrets to the audience.

Turn and Talk: How can a person's face or body language **reveal** that they are hiding something?

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MUMMIES: WHO OWNS THE DEAD?

diversity | enhance | migration | presume | reveal

DO THE MATH

When hikers first found the Iceman, they **presumed** that the body was fresh. Subsequent scientific study **revealed** that he had died over 5,000 years earlier.

Studies of the Iceman's body and clothing have **enhanced** our idea of what life was like long ago. Researchers learned about the **diversity** of his diet. Inside his stomach they found meat, grain, roots, and fruit. Researchers who study human **migration** were particularly interested in the Iceman's shoes. His shoes were sturdy and good for walking.

Option 1: The Iceman died about 5,300 years ago. Which letter represents the time frame of his death?

1. A
2. B
3. C
4. D

Option 2: Evidence from the Iceman's teeth and bones suggests that he spent his life in a region that measures 37 miles across. An average person can walk at a rate of 3.5 miles per hour. How long would it take to walk from one end of the Iceman's domain to the other?

About 10.57 hours, or about 10 hours and 34 minutes

Discussion Question: Today, when someone dies, we **presume** that the family has rights to the body. Many families want bodies disposed of quickly and respectfully. Some people offer their bodies for scientific study. It is illegal to use a person's body in this way without their consent. When an ancient mummy is discovered, we think about the body very differently. We know that studying ancient remains may **reveal** new information that will **enhance** scientific knowledge. Ancient mummies may tell us new things about the **diversity** of human experience, including where and how people migrated, what they ate, and how they lived. Is treating ancient mummies as scientific objects a form of disrespect? Or is the value to science more important? Or, could we say that scientific study itself is a way of respecting our ancient ancestors?

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MUMMIES: WHO OWNS THE DEAD?

diversity | enhance | migration | presume | reveal

THINK SCIENTIFICALLY

The students in Ms. Kahn's class are doing a unit on health, and Marian has become interested in epidemiology, the study of how diseases spread in populations. She is giving a report on a disease called Leishmaniasis (leesh-ma-NY-uh-sis).

"Leishmaniasis is a horrible disease that can cause big open sores on the body. It's caused by a parasite that gets into humans and other mammals through the bite of sandflies. The worst form of the disease can cause fever and swollen livers and spleens. Sometimes it is deadly. The disease kills over 20,000 people a year. The disease is found in a **diversity** of locations, but scientists think it probably started long ago in Nubia, the part of East Africa that is now Sudan. Evidence for that theory is **enhanced** by a study of mummies. The disease is also found—"

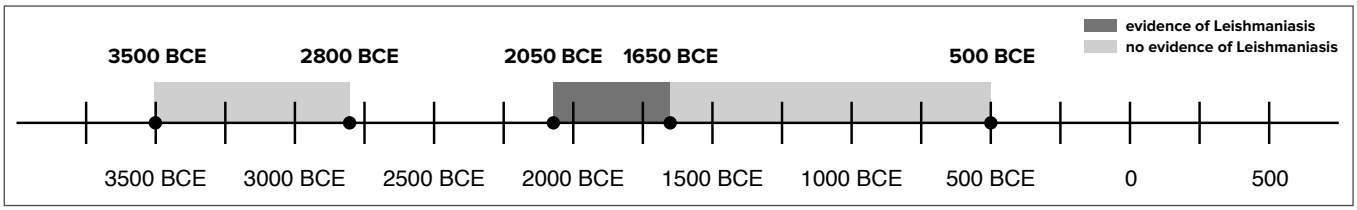
"Hold on," interrupts Ethan. "Mummies?"

"Yeah, mummies," says Marian. "So anyway, one of the best ways to prevent the spread of the disease is to use netting and insect repellant—"

"Back to the mummies," Ethan insists. "How do mummies help scientists figure out where a disease came from?"

"Okay, okay," says Marian. "Let's talk about the mummy angle. It's almost like the mummies are witnesses, and they provide clues that **reveal** where the disease was at different times."

Marian shows her classmates a timeline based on a study she found online. She tells them they are going to think through a question using scientific reasoning.



Data Source: Leishmaniasis in Ancient Egypt and Upper Nubia. (2006). *Emerging Infectious Diseases.*

Scientists studied mummies from three different burial sites in Egypt to learn more about Leishmaniasis donovani, the most dangerous form of the disease. They looked at Egyptian sites dating from 3500 to 2800 BCE; from 2050 to 1650 BCE; and from 2050 to 500 BCE. Interestingly, the scientists found DNA evidence of L. donovani *only* in mummies from the second burial site, which was used during the Middle Kingdom time period in Egypt. Since the Middle Kingdom was a time when Egypt and Nubia had lots of contact, and people migrated back and forth, the scientists concluded that the disease was connected to Ancient Nubia, the land south of Egypt.

This raises some questions:

- ⇨ Did Egyptians catch the disease from Nubians?
- ✗ NO. The disease is not contagious from person to person.
- ⇨ Did the sandflies that infect people once live in Egypt?
- ✗ NO. The environment in Egypt was never a good habitat for the sandflies.

*SO... How do you **presume** the Egyptians became infected?*

It seems likely that some Egyptians who traveled to Nubia were bitten and infected by the sandflies that lived there. Some of these infected Egyptians made it back home before they died and were mummified. But since sandflies couldn't live easily in Egypt, and the disease is spread by sandflies, Egyptians stopped catching Leishmaniasis when they stopped traveling to Nubia.

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MUMMIES: WHO OWNS THE DEAD?

UNIT 1.11

diversity | enhance | migration | presume | reveal

DEBATE THE ISSUE

Pick one of these positions (or create your own).

A

❑ Mummies should be left where they are.

OR

B

❑ Mummies can be moved as long as they do not leave the country where they were found.

OR

C

❑ Mummies can be moved to a museum or university where scholars can study them.

OR

CREATE YOUR OWN

❑ _____

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Jot down a few notes on how to support your position during a discussion or debate.

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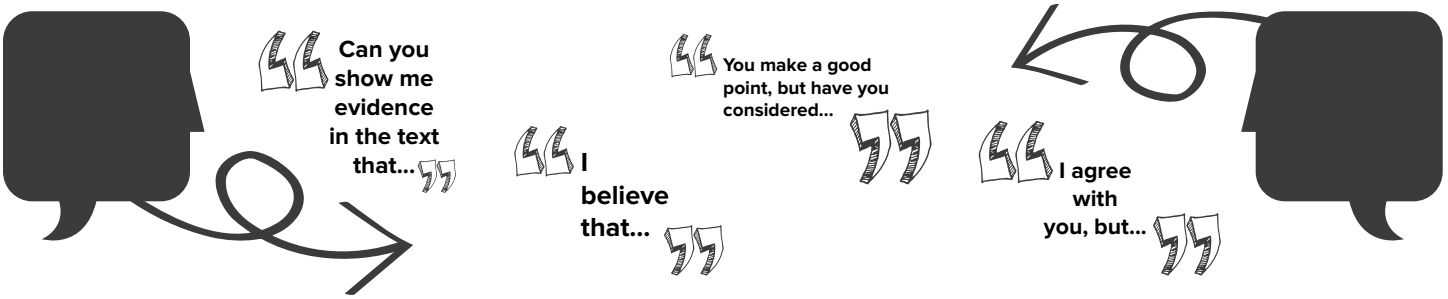

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MUMMIES: WHO OWNS THE DEAD?

diversity | enhance | migration | presume | reveal

TAKE A STAND

Support your position with clear reasons and specific examples. Try to use relevant words from the Word Generation list in your response.

diversity | enhance | migration | presume | reveal

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UNIT 1.12 acknowledge | incidence | incorporate | initiative | transport

This week's issue:

JUNK FOOD: SHOULD SCHOOLS SELL IT?

Questions for Classroom Discussion:

- What are some reasons that eating junk food is bad for students' health?
- What is diabetes? Why has there been a higher incidence of this disease among young people in recent years?
- Why do some kids think schools should continue to sell junk food?
- Why do some people support initiatives aimed at helping kids eat healthier foods in school?
- Should schools sell junk food to kids?

Many young people now **acknowledge** that eating too much junk food is not good for their health. They realize that soda, chips, and candy have little nutritional value. They know that these foods have too much sugar, salt, fat, and refined starches. Yet they continue to eat junk food regularly. Many also admit that they do not **incorporate** enough exercise into their daily routines.

There is a higher **incidence** of type 2 diabetes among youth in recent years. This has been linked to rising obesity rates. Diabetes is a disease in which either the body's insulin levels are too low or the body does not respond to the insulin level that is present. The digestive system breaks down food to make glucose, which provides the body's energy. Insulin is an important hormone that helps the body utilize glucose. Insulin is needed to **transport** glucose to muscles and other tissues of the body.

Despite the link between diabetes and weight, some think that schools should keep selling soda and snacks. They argue that students should have a choice about what they eat. Selling snacks also generates money for schools. Other people think that schools make junk food too accessible. They believe that schools should cooperate with health professionals on **initiatives** aimed at changing kids' eating and fitness habits. For example, schools could fill snack machines with more nutritious foods.

Should schools sell the unhealthy snacks students want, or do they have a responsibility to promote healthy habits?

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JUNK FOOD: SHOULD SCHOOLS SELL IT?

acknowledge | incidence | incorporate | initiative | transport

USE THE FOCUS WORDS

acknowledge *(verb)* to recognize; to accept

Sample Sentence: My teacher finally **acknowledged** that my way of solving the math problem was just as good as hers.

Turn and Talk: Talk about a time when you **acknowledged** that you made a mistake.

incidence *(noun)* occurrence

Sample Sentence: There has been a higher **incidence** of type 2 diabetes among youth in recent years.

Turn and Talk: What factors increase the **incidence** of diabetes in humans?

incorporate *(verb)* to include

Sample Sentence: Yasmin **incorporated** more fruits and vegetables into her diet.

Turn and Talk: How do you **incorporate** exercise into your daily activities?

initiative *(noun)* plan or strategy to solve a problem

Sample Sentence: The principal's new **initiative** gives laptops to every student as a way to increase student achievement.

Turn and Talk: Do you think **initiatives** to promote technology in the classroom help students do better in school?

transport *(verb)* to carry from one place to another

Sample Sentence: Blood **transports** oxygen from the lungs to cells all over the body.

Turn and Talk: What things do you regularly **transport** from school to home?

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JUNK FOOD: SHOULD SCHOOLS SELL IT?

acknowledge | incidence | incorporate | initiative | transport

DO THE MATH

As the **incidence** of type 2 diabetes climbs, researchers are doing more and more studies on good nutrition. Food companies try to **incorporate** findings from these studies so that consumers will continue to buy their products.

Frito-Lay is a company that makes Doritos, Cheetos, and other snack foods. These snacks are tasty, cheap, and easy to **transport**. Frito-Lay **acknowledges** that many of its foods are high in fat and sodium. Over the years, it has sponsored different **initiatives** to make its food healthier. One fat-cutting **initiative** led the company to develop Baked Lay's potato chips.

Here is some nutritional information about Baked Lay's chips, Classic Lay's chips, and a fresh apple.

	Lay's Classic Potato Chips	Lay's Baked Potato Chips	Apple
Serving Size	1 oz.	1 oz.	1
Calories	160	120	100
Fat	10 g	2 g	0 g
Sodium	170 mg	135 mg	2 mg

Option 1: The American Heart Association recommends that Americans eat a maximum of 1,500 mg of sodium each day. What percentage of a person's daily recommended sodium intake is in one bag of Lay's Baked Potato Chips?

A. 6%
B. 9%
C. 11%
D. 12%

Option 2: A large apple weighs about 8 ounces. There are 16 ounces in a pound. Based on this information, how many pounds of apples would you have to eat to equal the sodium in one serving of Baked Lay's?

You would have to eat 33.75 pounds of large apples. 135mg/2mg = 67.5 apples. Each large apple is 8 ounces (half a pound) so 67.5/2 = 33.75 pounds.

Discussion Question: People like bagged snacks because they are cheap, easy to store, and easy to **transport**. However, the high **incidence** of illnesses caused by unhealthy diets has become a national problem. Many different health **initiatives** call for kids to snack on fresh fruits and vegetables. Schools **acknowledge** that fresh fruits and vegetables are healthy, but they are expensive. How could your school encourage all students to eat fresh fruit each day? **Incorporate** what you know about day-to-day life in the classroom and the lunchroom. What would work best for your school?

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JUNK FOOD: SHOULD SCHOOLS SELL IT?

acknowledge | incidence | incorporate | initiative | transport

THINK SCIENTIFICALLY

"Given the **incidence** of obesity among young people, I don't understand why our school sells junk food to students," says Brianna.

"The vending machines raise money to help maintain the athletic facilities, **transport** teams to games, and other stuff like that," says Anthony. "So while I **acknowledge** that junk food can be unhealthy, I think there can be an indirect benefit to students' health when the sale of junk food helps fund school athletics."

"Seriously?" says Brianna. "That makes about as much sense as selling fire-starting licenses to arsonists in order to fund the fire department!"

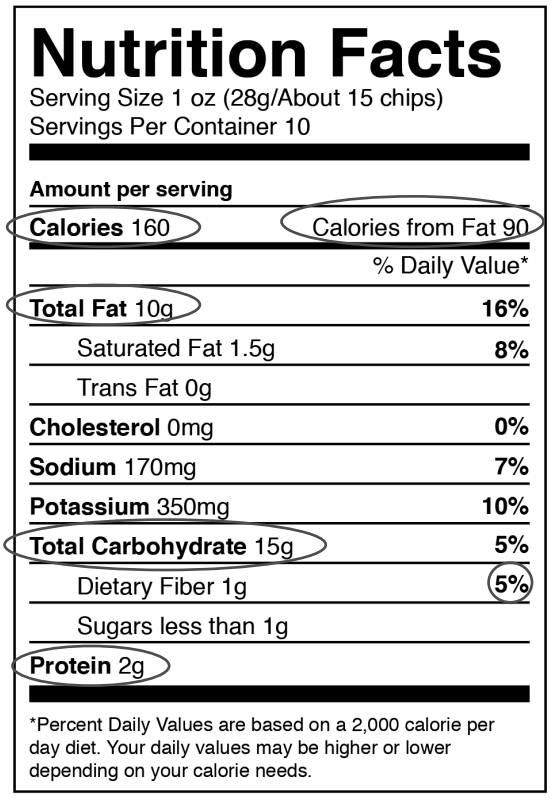
Anthony laughs. "Well," he says, "it's not like anyone is forcing students to buy and eat junk food. The nutritional information is printed right there on the packaging, so people know what they're getting."

"Fair enough," says Brianna, "except that most people probably don't read that stuff, and wouldn't understand it if they did."

"People should take more **initiative** to learn about what they're eating and take care of their own health," says Anthony. "I would rather **incorporate** more nutrition education into our science class than have more rules about how the school is allowed to raise money for sports and other good programs."

"Maybe you two could help the class learn to interpret the nutrition labels on food," says Mr. Seemy.

Brianna and Anthony brought in this portion of a nutrition label from a family-size bag of Lay's Classic Potato Chips, and posed some questions:



Nutrition Facts

Serving Size 1 oz (28g/About 15 chips)
Servings Per Container 10

Amount per serving	
Calories 160	Calories from Fat 90
	% Daily Value*
Total Fat 10g	**16%**
Saturated Fat 1.5g	**8%**
Trans Fat 0g	
Cholesterol 0mg	**0%**
Sodium 170mg	**7%**
Potassium 350mg	**10%**
Total Carbohydrate 15g	**5%**
Dietary Fiber 1g	**5%**
Sugars less than 1g	
Protein 2g	

*Percent Daily Values are based on a 2,000 calorie per day diet. Your daily values may be higher or lower depending on your calorie needs.

These nutritional statistics are for a serving of 1 ounce of potato chips—about 15 chips. If you ate 2 ounces of chips, how many calories would you consume?

160 x 2 = 320 calories

Fat contains about 9 calories per gram. How many calories from fat are in one serving?

90 calories from fat

Carbohydrates contain about 4 calories per gram. How many calories from carbohydrates are in one serving?

15 x 4 = 60 calories from carbohydrates

Protein contains about 4 calories per gram. How many calories from protein are in one serving?

2 x 4 = 8 calories from protein

What do the approximate number of calories in fat, carbohydrates, and protein add up to? Is this close to the total calories listed for one serving?

158 calories, which is close to the total listed (160)

It's typically recommended that 20–35% of the total calories in your diet should come from fat. What percentage of the calories in these potato chips comes from fat?

Approximately 56% of the calories come from fat.

Twenty servings of these potato chips would supply 100% of the daily recommended fiber. Would this be a good way to get all your fiber? Why or why not?

No. You would get more than the daily recommended intake of fat, sodium, etc.

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JUNK FOOD: SHOULD SCHOOLS SELL IT?

acknowledge | incidence | incorporate | initiative | transport

DEBATE THE ISSUE

Pick one of these positions (or create your own).

A

❑ Schools should not allow junk food to be sold on campus.

OR

B

❑ Schools should allow junk food to be sold on campus.

OR

CREATE YOUR OWN

❑ _____

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Jot down a few notes on how to support your position during a discussion or debate.

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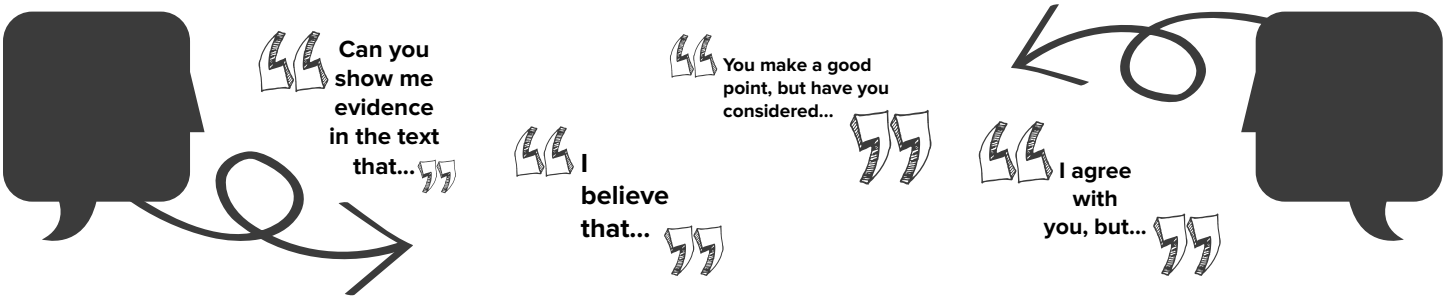
Be a strong participant by using phrases like these:



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JUNK FOOD: SHOULD SCHOOLS SELL IT?

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TAKE A STAND

Support your position with clear reasons and specific examples. Try to use relevant words from the Word Generation list in your response.

acknowledge | incidence | incorporate | initiative | transport

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Word Generation | Series 1 | Part A

FOCUS WORDS

Unit 1.01
analyze
factor
function
interpret
structure

Unit 1.02
guideline
mature
ambiguous
due
status

Unit 1.03
complexity
culture
element
resourceful
tradition

Unit 1.04
design
feature
impact
potential
transfer

Unit 1.05
considerable
contribute
demonstrate
sufficient
valid

Unit 1.06
rely
react
alternative
justify
proportion

Unit 1.07
access
civil
despite
integrate
promote

Unit 1.08
attribute
interest
project
relocate
statistics

Unit 1.09
adjustment
exposure
modify
monitor
transition

Unit 1.10
fundamental
alter
conflicted
substitute
compound

Unit 1.11
diversity
enhance
migration
presume
reveal

Unit 1.12
acknowledge
incidence
incorporate
initiative
transport

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